

TECHNOLOGY DEPARTMENT

# Construction Methods

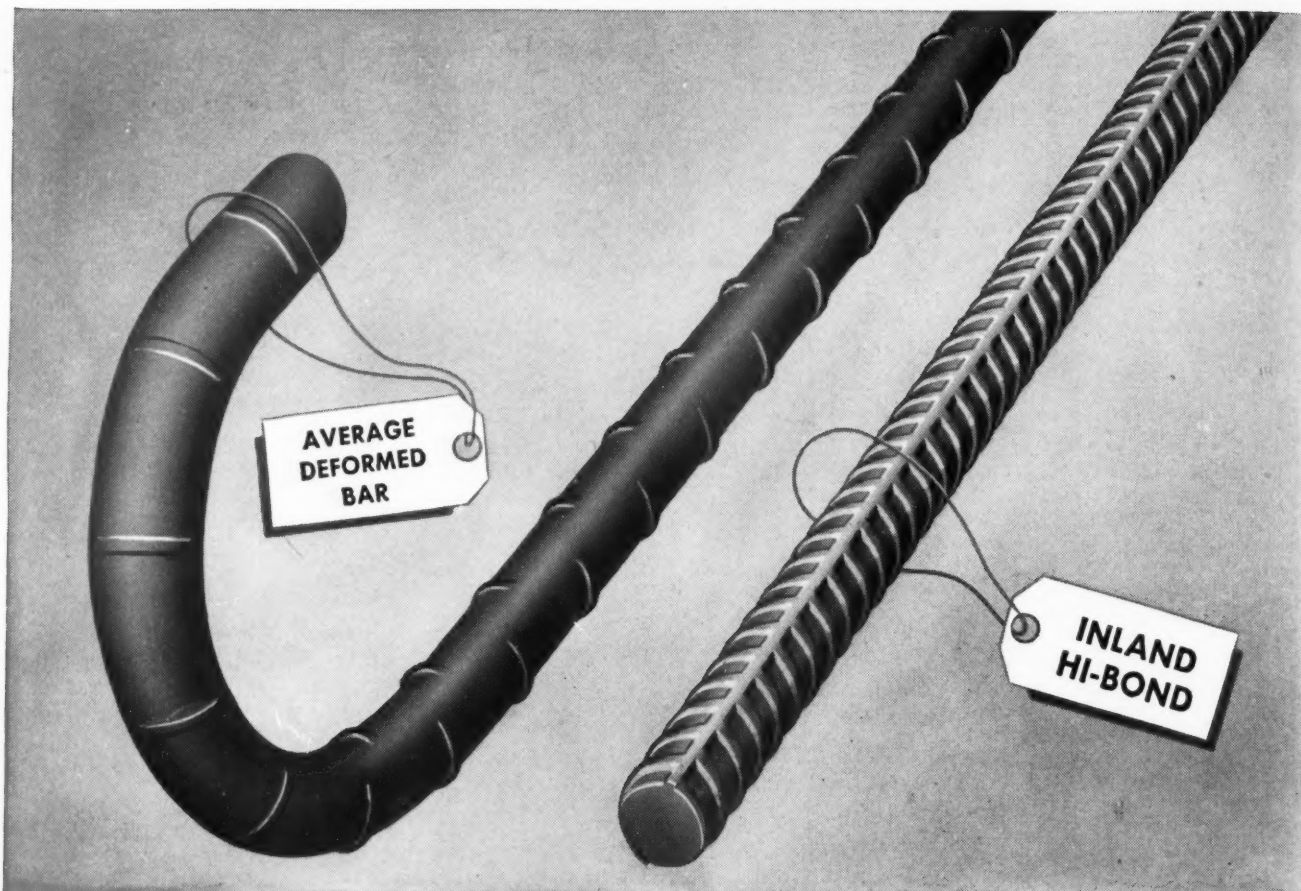
A MCGRAW-HILL PUBLICATION

APRIL, 1948

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DETROIT

*Backhoe handles big concrete pipe on  
Saginaw-Midland (Mich.) water line.*

*Backhoes and Bulldozers Build Water Lines  
Concrete Cofferdam at Bull Shoals  
Working Frozen Ground in Alaska  
Adobe Brick Stabilized with Asphalt  
Walking Piledriver for Small Jobs*



## Which Provides Greater Anchorage?

Strange as it may seem, tests made by the National Bureau of Standards have definitely proved that a straight section of Inland Hi-Bond reinforcing bar provides greater anchorage than hook anchors made of ordinary deformed bars. That's why, with Hi-Bond, hook anchorage is unnecessary.

Hi-Bond's greater bonding strength is due to its deep, reversed, double-helical ribs. By preventing slipping, Hi-Bond

makes it possible to use more of the potential strength of the steel and to take advantage of the higher compressive strength of present-day concrete. Thus, Hi-Bond provides more efficient and economical structures.

Unfortunately, the present demand for Hi-Bond greatly exceeds the supply. To make larger tonnages available to you, we have licensed other steel companies to make this superior bar.

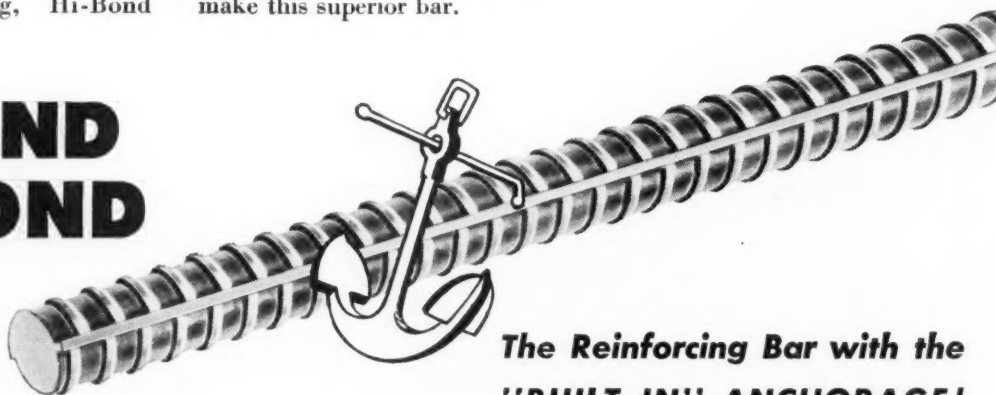
Write for Booklet

### INLAND STEEL CO.

38 S. Dearborn St., Chicago, Ill.

Sales Offices: Chicago,  
Davenport, Detroit, Indianapolis,  
Kansas City, Milwaukee,  
New York, St. Louis,  
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# INLAND HI-BOND



**The Reinforcing Bar with the  
"BUILT-IN" ANCHORAGE!**

OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES



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Volume 30 APRIL 1948 Number 4

## CUTS AND FILLS

A NEW VENTURE in construction will be a Regional Construction Show staged at Houston, Tex., next Oct. 2-10, under the direction of the Houston Chapter, A. G. C. It will be a complete display of equipment, tools and materials used throughout construction, including home building. The event will be splendid public relations for construction, which the industry certainly needs. But, setting a precedent for possible other similar shows, it should be kept strictly on a regional basis, with the local distributors doing the displaying rather than the manufacturers. Otherwise the manufacturers, already heavily involved in the A.R.B.A. Road Show, may balk.

RATIFICATION by the presidents of the Building Trades, A. F. of L., of the proposed joint management-labor board to settle construction jurisdictional disputes assures success of the plan. Labor has named Richard Gray, president, Building Trades Dept., A. F. of L.; Wm. O'Neill, plumbers; James Close, sheet metal workers; and Morris Hutcheson, carpenters, as delegates to the Board. Edward Palmer, Senior & Palmer, New York; James D. Marshall, assistant managing director of Associated General Contractors; H. R. Cole, Tile and Mantle Contractors Assoc., and P. M. Gary, Electrical Contractors Assoc.; will represent the contractors. These eight will select an impartial chairman to head the Board. At last it looks as if construction will be able to cope with one of its most exasperating problems, that of jurisdictional disputes. It had better make good on the deal, or NLRB will move in under the Taft-Hartley Act. Jurisdictional disputes will be outlawed, either from within or without the industry.

GENERAL CONTRACTORS have reached the three-quarter mark in the A.G.C. plant to sponsor reserve construction units

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for the Corps of Engineers. Seventy-one chapters and branches of the association have already signed agreements to organize 72 units out of the 100 promised only last October at the A.G.C. meeting in Des Moines. The response is heartening to both the Army and the construction industry, and is way beyond expectations of the Engineers, who are admittedly hard-pressed to keep up with the contractors in forming the units.

STAY OUT of contracting if you want to get rich, again warns the Iowa A.G.C. Central Contractor in reporting average earnings of 36 industries compiled by Dun & Bradstreet. Building and construction earned a measly 2.11 percent, against brewing's 7.76 percent, candy maker's 7.88 percent, and bedspring and mattress company's 6.32 percent. Construction was about the poorest risk of the entire lot listed.

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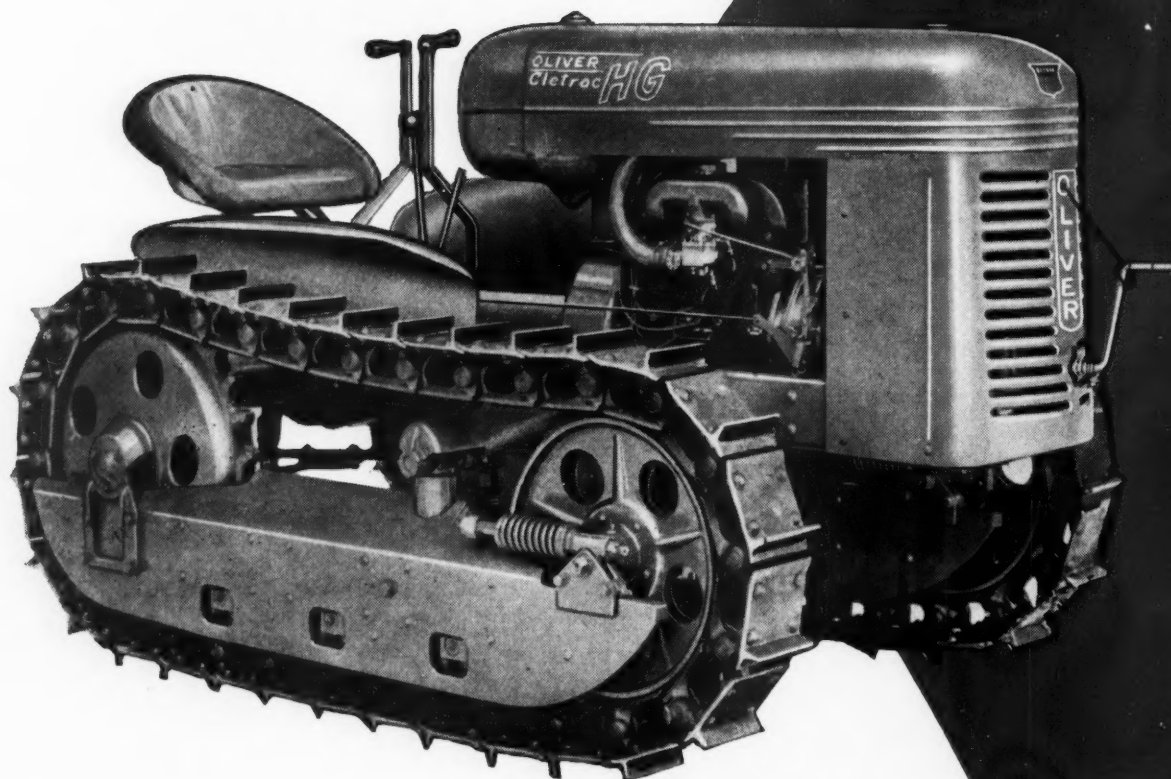
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## A LITTLE TRACTOR...



Here's the smallest crawler tractor in the field, but it's big in performance . . . big in profit possibilities for you!

The Oliver "Cletrac" HG is a husky little giant small enough to do a lot of jobs without the high operating costs of a larger tractor . . . big enough to pack a real wallop. It gets you into places you can't reach with bigger equipment . . . jobs that formerly had to be done by manual labor.

Digging foundations . . . hauling equipment . . . fill-in work . . . landscaping . . . small trail building and approach roads . . . sidewalk snow removal, the Oliver "Cletrac" HG with its line of auxiliary equipment is a natural for these and many other jobs. It gets in and out of tight spots with ease . . . it's fast and sure on its feet . . . it's a time-saving, cost-cutting unit that will be a big help on all your jobs.

The Oliver "Cletrac" HG is built to the same high standards of quality that characterize the big tractors in the Oliver "Cletrac" line. It's rugged . . . low in operating and maintenance costs . . . packed with power . . . and designed for maximum operator comfort.

### **Cletrac**

a product of

## **The OLIVER Corporation**

INDUSTRIAL DIVISION • 19300 EUCLID AVENUE • CLEVELAND 17, OHIO





**with Big possibilities**  
*for YOU!*



For all the facts on the HG,  
see your Oliver "Cletrac" Dis-  
tributor or write for your copy  
of the new Model HG catalog.



"THE SIGN OF  
EXTRA SERVICE"

# THE JOB JESTER

CARTOONS DRAWN FOR



CONSTRUCTION METHODS



"Now just relax and concentrate on what those men are doing."



"Did you happen to notice what that sign said?"



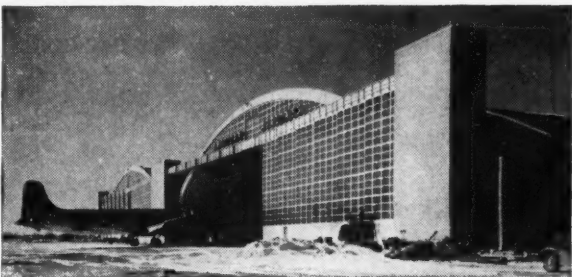
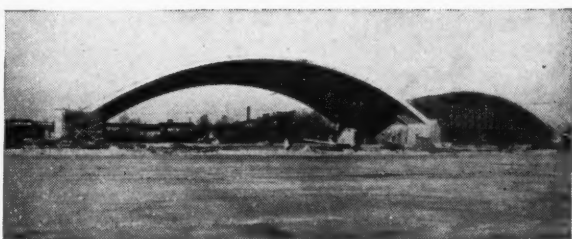
"Boy—this stuff's got it all over mud!"





Two concrete hangars for American Airlines, Chicago, each with 257 ft. clear span, 235 ft. door opening, and an acre of unobstructed floor space, provide elbow room for largest planes.

## Wingway FOR SKYBIRDS WITH 230-FT. WINGS

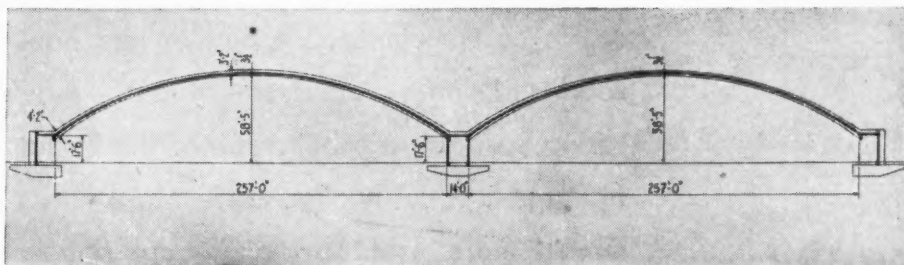


THE nation's largest commercial airline hangar, recently completed for American Airlines at Chicago, dramatically expresses the adaptability of concrete in the hands of imaginative designer and concrete-minded constructor. Of thin-shell, arch-rib construction, the building consists of two reinforced concrete hangars and leanto space, all part of one structure. Each hangar has an acre of unobstructed floor area. Hangar doors provide clear openings of 235 x 41 ft.; an additional opening accommodates a tail 54 ft. high. The hangars can easily house even the largest commercial planes, as well as latest military craft with 230-ft. wing span.

Sound design and good job planning, taking full advantage of the dependable high early strength of 'INCOR' 24-HOUR CEMENT, made it possible to provide the functional efficiency, fire-safety and long-time economy of quality concrete, at a cost well within the range of less permanent construction.

Estimate with 'Incor'\*, America's FIRST high early strength Portland cement . . . save at least 50% on forms, reduce time or overhead expense . . . get earlier occupancy at less cost.

\*Reg. U. S. Pat. Off.



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**CORBETTA CONSTRUCTION CO., INC.**  
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 'Incor' Cement supplied by  
**MATERIAL SERVICE CORP.**, Chicago

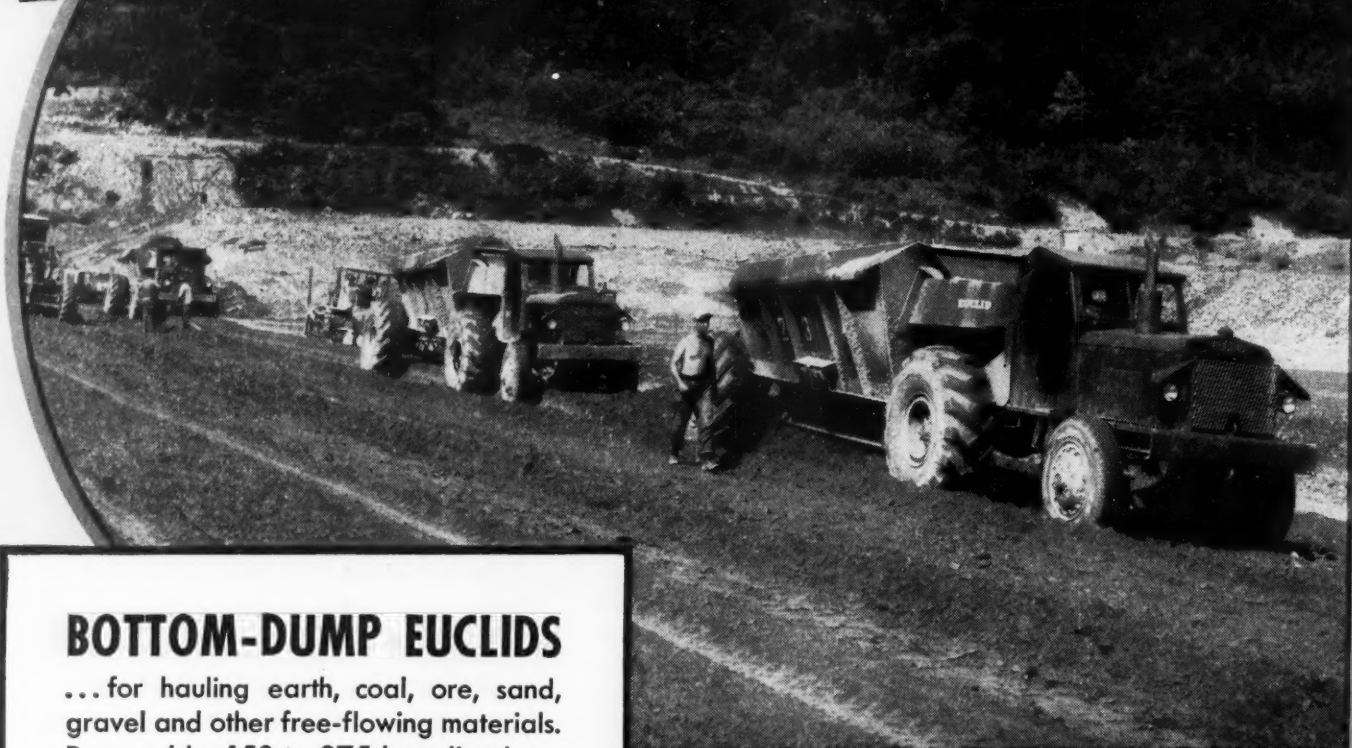
## LONE STAR CEMENT CORPORATION

Makers of LONE STAR CEMENT • 'INCOR' 24-HOUR CEMENT • LONE STAR AIR-ENTRAINING CEMENT • LONE STAR MASONRY CEMENT

Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. • KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

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# MORE PAY DIRT



## **BOTTOM-DUMP EUCLIDS**

...for hauling earth, coal, ore, sand, gravel and other free-flowing materials. Powered by 150 to 275 h.p. diesel engines...top speeds loaded up to 32.6 m.p.h....capacities of 13 to 50 cu. yds.—20 to 40 ton payloads...fast, clean dumping...easy handling...large tires and excellent weight distribution for good traction and flotation...double reduction, planetary type drive axle.

Euclid earth moving equipment is engineered and built to move more dirt at lowest cost. Simple but rugged construction, combined with speed and economy of operation, result in more pay dirt and more profit.

***Don't Pass up the Opportunity  
to see the many new  
EUCLID Developments  
at the  
CHICAGO ROAD SHOW  
JULY 16-24***

Easy loading...large capacity...a wide range of usefulness...speed on the haul road and dump...long life in heavy duty service...these are but a few of the Euclid features that cut hauling costs. More yards moved more profitably and more pay in every payload—that's the Euclid story.



# EUCLIDS



# *Means* MORE PROFIT



## REAR-DUMP EUCLIDS

... for hauling rock, coal, ore, overburden and other heavy excavation. Powered by 150 to 275 h.p. diesel engines ... top speeds loaded up to 35.4 m.p.h. ... capacities of 9.7 to 20.7 cu. yds.—15 to 22 ton payloads ... rugged frame and chute type body ... high-dumping angle ... double-acting Euclid hydraulic hoist ... double-reduction, planetary type drive axle.

## EUCLID LOADER

... for fast mobile loading of large capacity hauling units. Powered by 150 or 190 h.p. diesel engine mounted in rear. Loads practically any material in short travel distance ... all loader operations controlled by tractor operator ... three handy control levers start and stop belt and adjust cutting blade for angle and depth of cut ... maximum cutting depth 24" ... grading cuts can be made up to 9'6" in width.



Ask your Euclid distributor or representative to show you how you can do a wider range of jobs with Euclids at less cost per ton or yard moved.

**The EUCLID ROAD MACHINERY Co. Cleveland 17, Ohio**

# *Move the Earth*



# ASSURE GREATER OPERATING ECONOMY



Keep engines clean  
by lubricating with  
*Texaco Ursa Oil X\*\**

Tune in . . .  
TEXACO STAR THEATER  
every Wednesday night  
featuring Gordon MacRae,  
Alan Young,  
Evelyn Knight:  
ABC Network.



# TEXACO





**P**UT *Texaco Ursa Oil X\*\** in your heavy-duty engines — gasoline or Diesel — and reduce fuel consumption and the cost of repairs and maintenance.

*Texaco Ursa Oil X\*\** is fully detergent, dispersive, and resistant to oxidation. It keeps engines clean . . . prevents deposits of sludge, varnish and carbon that steal power . . . assures free rings and valves . . . protects bearings from corrosion . . . reduces wear. For the best and thriftiest engine operation, lubricate with *Texaco Ursa Oil X\*\**.

For chassis parts of trucks, tractors, graders

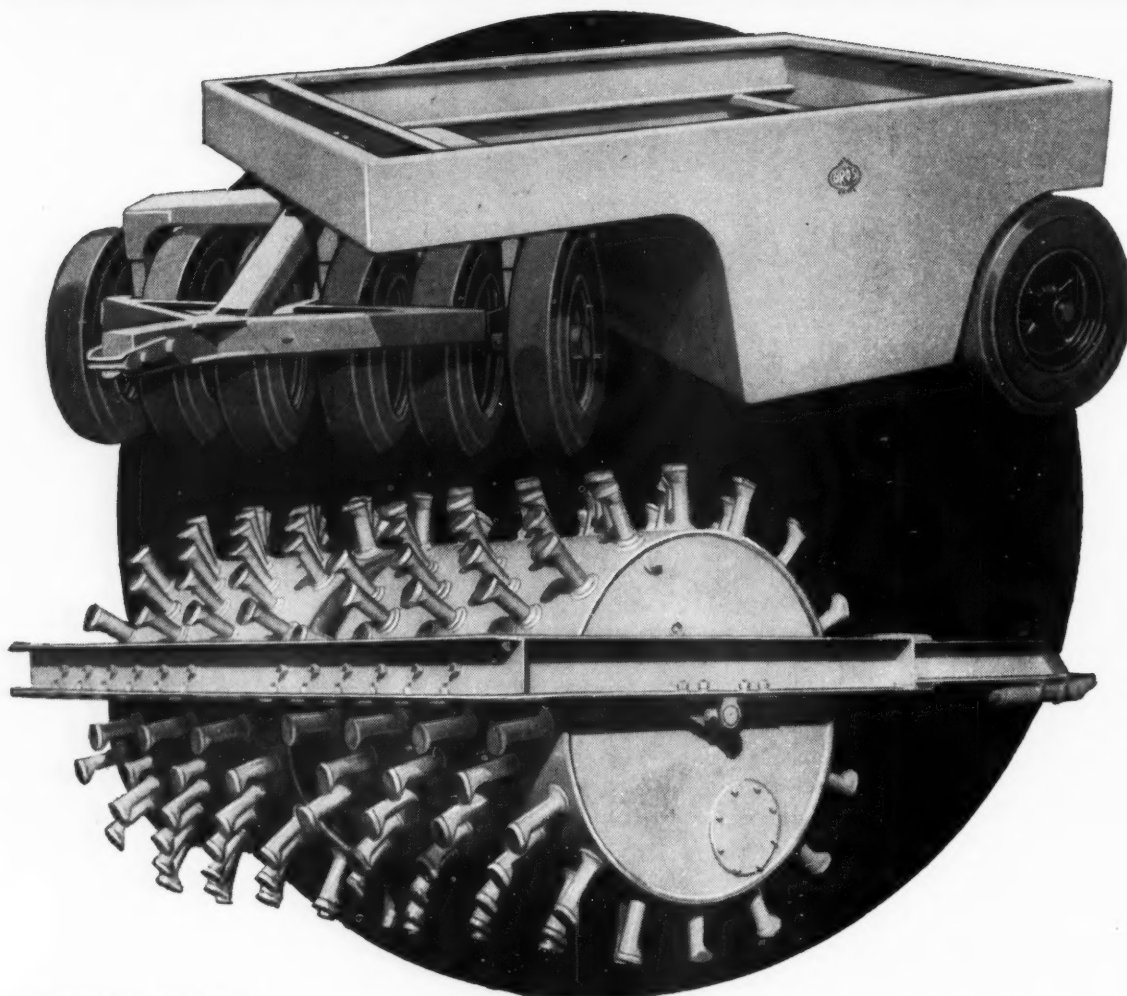
and other equipment, lubricate with *Texaco Marfak* — the world-famous chassis lubricant that lasts longer on the job . . . seals out dirt and moisture. And give crawler track mechanisms full and lasting protection with *Texaco Track Roll Lubricant*.

To get the best performance . . . most economically . . . from *all* your equipment, follow the Texaco Simplified Lubrication Plan. For details, call the nearest of the more than 2500 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

# Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

## MEETING THE NEEDS FOR BETTER COMPACTION



### **BROS Pneumatic Tire Rollers and Tampers**

● Every type of compaction work calls for different specifications of soils and densities. But always the job calls for correct and complete compaction . . . thorough stabilization free of voids and soft spots.

To do these jobs quickly and at low cost, *Bros* offers a compacting tool designed for specific soils and densities.

The *Bros* line includes the famed *Bros* Pneumatic Tire Rollers in oscillating Straight Wheel and oscillating Wobble Wheel types\* . . . and *Bros* Tamping Rollers from the single sheep foot roller to the new

*Bros* Giant Tamper which delivers a pressure of 800 pounds per square inch, meeting the requirements of earth dams, airport-runways and super-highways.

Write today for informative booklets discussing modern compaction and the application of *Bros* rollers in meeting modern requirements with economy. *Bros* Boiler & Manufacturing Co., Minneapolis 14, Minn.

\*Only *Bros* makes both oscillating Straight Wheel and oscillating Wobble Wheel Rollers. Patent Nos. 20241824, 2241098, U.S.A. 400228, Canadian.

# **BROS**

WM. BROS BOILER AND MANUFACTURING COMPANY • MINNEAPOLIS 14, MINNESOTA





# WE SAID TWELVE

for this

## New Jersey Contractor

Start at New Jersey, or anywhere else in the U.S.A., and go in any direction you want. Wherever you go you'll find one out of every three Northwests sold is a repeat order in the hands of a leading contractor like Thomas Procter.

When you buy a Shovel, Crane, Dragline or Pullshovel you are buying a key machine for your job—the pace-maker that will make or break it. For this position you need the best machine money can buy. You need the Northwest simplicity that makes upkeep easy and keeps maintenance costs low. You need the easy operation of the "Feather-Touch" Clutch Control. You need the digging power of the Northwest Dual Independent Crowd, the sure maneuverability of Northwest Crawlers, the safety advantages of the Cushion Clutch, the smoothness of Northwest Uniform Pressure Clutches and the many other features that mean more output.

Ask Northwest owners why they buy Northwests over and over again. It's because Northwests make money. Plan ahead to have one!

NORTHWEST ENGINEERING CO.  
1503 Field Bldg., 135 South LaSalle St.  
Chicago 3, Illinois



Follow the  
NORTHWEST  
CROWD

Still the  
Standard  
toward which  
others  
build!

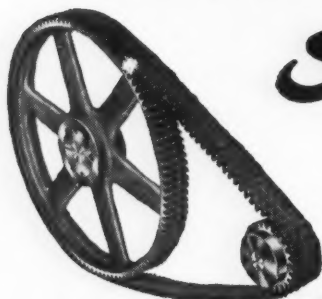
If you have a  
REAL ROCK SHOVEL  
you won't have to  
worry about  
output in dirt

# NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS



# MORSE ANNOUNCES NEW SILENT CHAIN STOCK DRIVES!



**Users benefit by Morse standardization; early delivery available**

**I**NDUSTRY will profit in many ways by the development of this new silent chain standardization program.

A reduction in the number of parts carried in stock cuts down inventories, reduces storage space and simplifies ordering.

With industrial distributors stocking these new Morse packaged silent chain drives, industry will be able to obtain complete silent chain drives off the shelf, ready

for immediate installation.

This new standardization program is certain to result in a sharp increase in the use of silent chain drives in industry.

Two large Morse plants, in Detroit and Ithaca, are meeting all schedules to make these new standardized silent chains and sprockets available.

Major industrial distributors everywhere will handle the new standardized Morse Silent Chains and Sprockets as they now do other Morse products.

## Morse plans extensive stock drive program; Taperlock bushings standard

**T**OOLING has been completed at Morse for  $\frac{1}{2}$ " and  $\frac{3}{4}$ " pitch chain sizes made to the new Silent Chain Standards. Also announced is a silent chain stock drive program covering both sprockets and chains.

The company's new stock drive program will include a series entirely different from the present line. All popular widths of chains will carry a single center guide link.

### Sales Manager outlines plans

The General Sales Manager of Morse says that, henceforth, Morse cast-iron stock sizes of driven sprockets will have finished bores prepared for use with Taperlock bushings. Bushings will be available with finished bore diameters in increments of  $\frac{1}{16}$  inch.

It is also pointed out that Morse driving sprockets will be furnished with finished bore diameters in the N.E.M.A. standard shaft sizes, complete with keyway.

Morse Chain's six dual-duty sprocket face widths will operate with eleven stock chain widths. It is possible

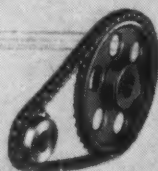
to obtain as many as 40 ratios for each stock chain width. Such combinations are expected to cover 95% of the ratios required by all users.

Standardized stock silent chain will continue to be furnished with the exclusive feature—the Morse Rocker Joint.

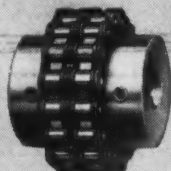
Write Morse Chain Company, Department 130, Detroit, Michigan, for Catalog C-71-48 giving complete information on the new Morse Silent Chain and Sprocket standardization program.

# MORSE

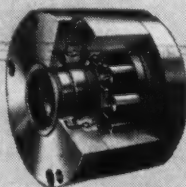
**MECHANICAL  
POWER TRANSMISSION  
PRODUCTS**



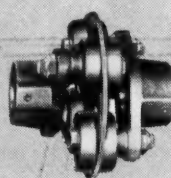
Morse Roller Chain Drives for positive power transmission.



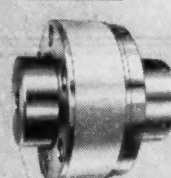
Morse Chain Couplings, for economical, easy installations.



Morse Free Wheeling Clutch for positive indexing.



Morflex Couplings are torsionally flexible and compensate for misalignment.



Morflex Radial Couplings are especially suited for heavy torque loads.

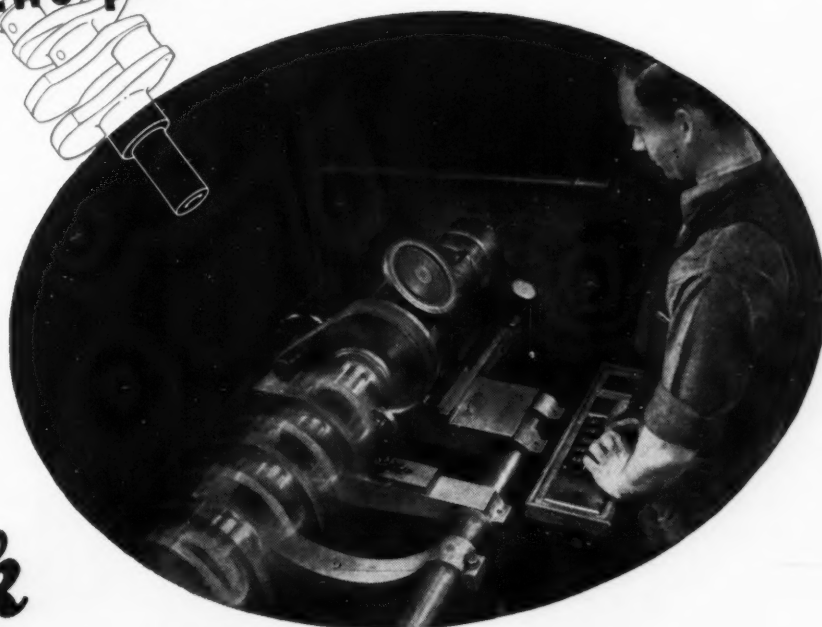
you get more work out of Mack Trucks



Work done on the job is the one true yardstick of truck value. On tough construction hauls, operators like D. D. Skousen Const. Co., Albuquerque, N. M., find that Mack trucks give full measure—and more—in extra work, enduring reliability and rock-bottom maintenance costs.

because...we put more work into Macks

**True Dynamic Crankshaft Balance** assures smooth running and prolonged bearing life. This highly sensitive balancing machine determines exact adjustments needed in the counterweights for perfect running balance. A calibrated drilling machine then removes metal from the weights as electrically indicated and the final result is again checked.



**Mack**

Trucks for

Every Purpose

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New York. Factory at Newark, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts. In Canada, Mack Trucks of Canada, Ltd.

SINCE 1900, AMERICA'S HARDEST-WORKING TRUCK

5220

# On-the-side, Mister!

**Blackhawk Jacks give you extra utility!**

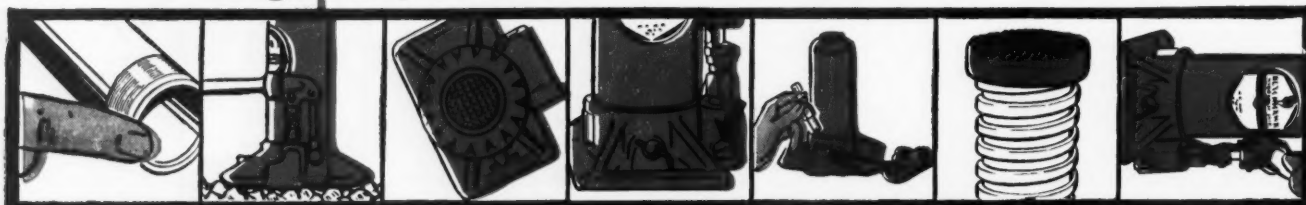
Here's an angle on Blackhawk Jacks that spells plus uses for you. Because of exclusive pump-on-side design, Blackhawk Hydraulic Jacks not only lift, but also deliver full power at any angle, vertical to horizontal. That's why Blackhawk Jacks give such dependable and unmatched service on even the toughest jobs. When you need jacks—buy the best—buy Blackhawks from your Blackhawk Industrial Supply Distributor.

A Product of BLACKHAWK MFG. CO., Dept. J2348, Milwaukee 1, Wisconsin



*"Service Proved"*

**These 7 Big Features Give You More For Your Money**



**LESS WEAR—LONGER LIFE!** Exclusive "Mirror-finish" on cylinders reduces plunger cup wear.

**POSITION MORE EASILY!** Sled-type base "skis" over uneven surface for quick placement.

**TIP - PREVENTION!** Load is automatically centered over the base — plunger is dead center.

**EASY MAINTENANCE!** All valves under one cap screw. No dismantling of jack to clean valves.

**LONGER PUMP LIFE** because housing is smoothly machined steel cylinder. Easily replaced.

**PERMANENTLY SHARP,** sure-grip heat-treated saddle. Serrations cut by machine, not cast.

**FULL POWER ON SIDE!** Original pump-on-side feature permits horizontal floor-level use.

# BLACKHAWK



**JUST  
CRAMMED  
WITH  
POWER**

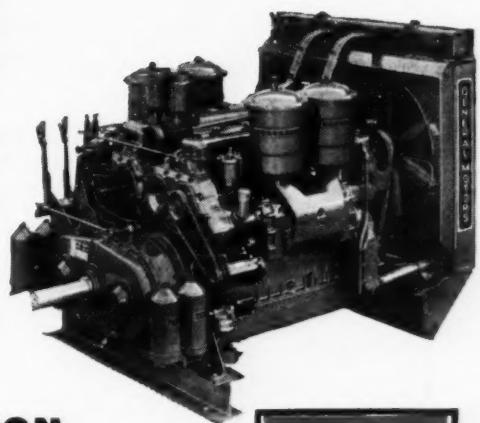


*Marion 111-M 3 1/2 cu. yard shovel strip mining for Yamulla Trucking and Excavating Company of Hazleton, Pennsylvania.*

**T**AKE the case of the Marion 111-M 3 1/2 cu. yard shovel. Here's equipment that calls for plenty of power fitted in a compact cab. This is where a General Motors "Twin" does a masterful job, because it makes available 330 husky, dependable horsepower.

Of course, the Yamulla Trucking and Excavating Company like their new shovel. The smooth electric swing, the snappy mechanical scoop, the economy of fuel and the dependability of its GM Diesels would please any shovel operator.

Discover what GM Diesel power can do for you as a prime mover or in fine contractor's equipment. Get the story from your local GM Diesel dealer or write direct to us.



## **DETROIT DIESEL ENGINE DIVISION**

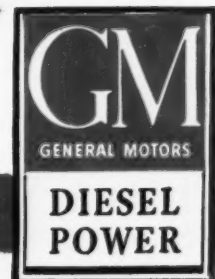
SINGLE ENGINES... Up to 200 H.P.

DETROIT 28, MICHIGAN

MULTIPLE UNITS... Up to 800 H.P.

**GENERAL MOTORS**

**DIESEL BRAVN WITHOUT THE BULK**





# HUBER

*taught us a few things about*  
**ROAD MACHINERY**

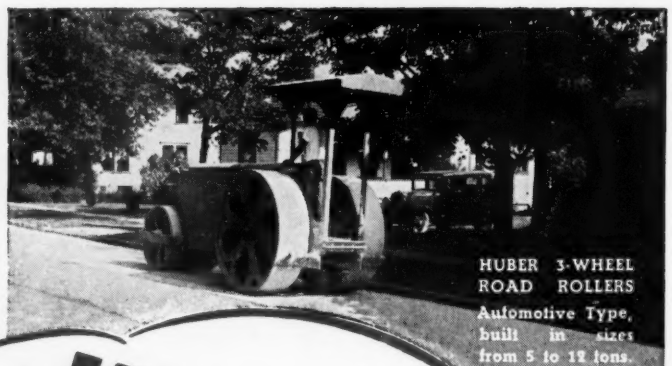
The moment you get Huber Road Machinery to work you will discover three things, like many road men have done.

**FIRST**—you will find that Huber's practical design—the result of 35 years experience in close contact with road men, readily measures up to the job it has to do.

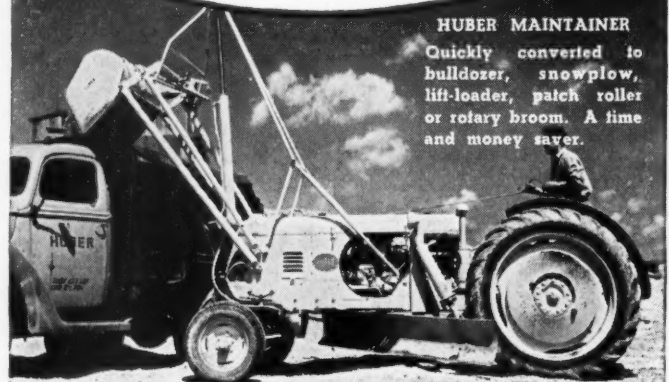
**SECOND**—you will find that Huber Road Machinery has all of the necessary features incorporated into it that make for speedy performance... plenty of power and stamina... versatility... and maximum maneuverability to work in tight places.

**THIRD**—you will find, as hundreds of users have, that Huber Road Machinery saves you money. Its capacity to stay on the job... its low operating costs... its trouble-free service are factors not to be overlooked.

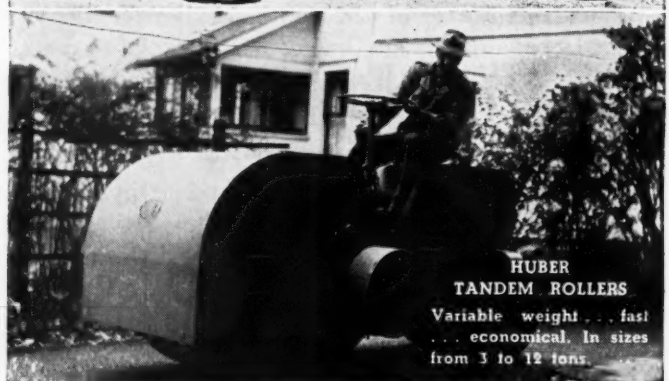
Your nearest Huber distributor will be glad to give you more details. Drop in and see him right away.



**HUBER 3-WHEEL ROAD ROLLERS**  
 Automotive Type,  
 built in sizes  
 from 5 to 12 tons.



**HUBER MAINTAINER**  
 Quickly converted to  
 bulldozer, snowplow,  
 lift-loader, patch roller  
 or rotary broom. A time  
 and money saver.



**HUBER TANDEM ROLLERS**  
 Variable weight... fast  
 ... economical. In sizes  
 from 3 to 12 tons.

THE **HUBER** MFG. COMPANY • MARION, OHIO, U. S. A.

# HUBER

*3 Wheel • Tandem*  
**ROAD ROLLERS**  
*and*  
**MAINTAINERS**

# REACH HIGH...DIG DEEP



THE turntables on these two machines are twins but there the resemblance ends. One contractor wanted a highly mobile crane that could handle up to 110 ft. of boom with ease and precision. The other demanded a dragline mounted on a 2-speed chain drive crawler that could literally float on top of the job while ladling out big yardages of mud and muck.

Both made their selection from the "Lorain-41 Series"—a complete line of shovels and cranes featuring one basic turntable design with a choice of crawler mounting or three types of Moto-Crane and Self-Propelled rubber-tire carriers. And both got the cream of the  $\frac{3}{4}$  yd. class for the "41" on any mounting with any type of boom is an outstanding performer. You can get complete details from your local Thew-Lorain distributor. Write or call him today.

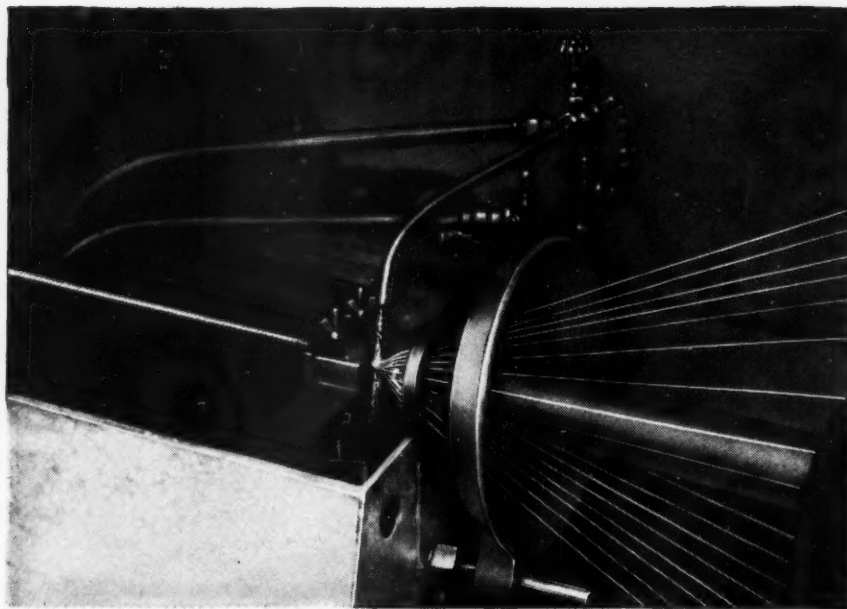
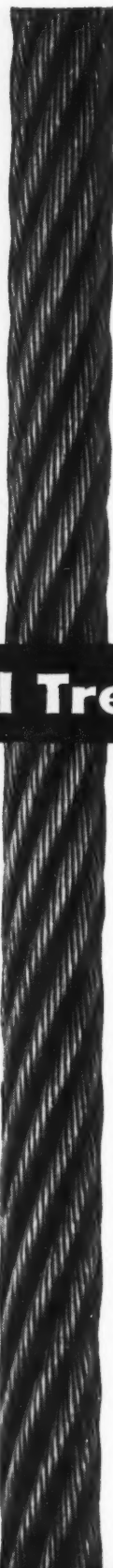
THE THEW SHOVEL COMPANY, Lorain, Ohio



**thew Lorain 41** SERIES

**CRANES • SHOVELS • DRAGLINES • MOTO-CRANES**





## Hot Oil Treatment for Steel Muscles

**THIS 82-PAGE BOOK ON WIRE ROPE IS FREE. WRITE FOR YOUR COPY TODAY!**

Thousands of wire rope users have found that the information packed in the pages of "Know Your Ropes" has made their work easier. It's full of suggestions on proper selection, application and usage of wire rope. It's easy-to-read and profusely illustrated. For your free copy, write—Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Mass.



Field lubrication of wire rope does much to prevent friction and corrosion, but it is only a surface treatment. To provide proper *internal* lubrication, every strand of Wickwire Rope is actually formed in a stream of hot lubricant. This quick-setting lubricant packs the many spaces between the wires of the strand.

Fiber cores, too, are saturated with a compound that lubricates the strands during the service life of the rope. This built-in protection is the result of years of study to develop a lubrication system that would protect ropes against friction, corrosion and other factors which bind ropes and result in loss of strength and rope life.

Thorough lubrication is only one step in the quality control of Wickwire Rope manufacture—but we at Wickwire believe that *every* step is important to assure finished rope that will provide the utmost in performance, safety and long life.

Wickwire Distributors and Rope Engineers are always ready to help solve your wire rope problems and supply the right rope for your needs. Wickwire Rope is available in all sizes and constructions, both regular lay and WISSCOLAY *Preformed*.

# WICKWIRE ROPE

**A PRODUCT OF THE WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL AND IRON CORPORATION**

**WIRE ROPE SALES OFFICE AND PLANT—Palmer, Mass.**

**EXECUTIVE OFFICE—500 Fifth Avenue, New York 18, N. Y.**

**SALES OFFICES—Abilene (Tex.) • Boston • Buffalo • Chattanooga • Chicago • Denver • Detroit • Emlenton (Pa.) • Fort Worth • Houston • New York • Philadelphia • Tulsa**  
**PACIFIC COAST SUBSIDIARY—The California Wire Cloth Corporation, Oakland 6, California**



**JAEGER announces the hoist with automotive transmission, hydraulic finger-tip control**

# 2-SPEED HYDRO-HOIST

**2-SPEED FLEXIBILITY:** The shift of a lever gives you low-gear power or high-gear line speed—both in the same hoist.

**HYDRAULIC FINGER-TIP CONTROL:** The "feel" but not the weight of the load. Like \$25,000 cranes.

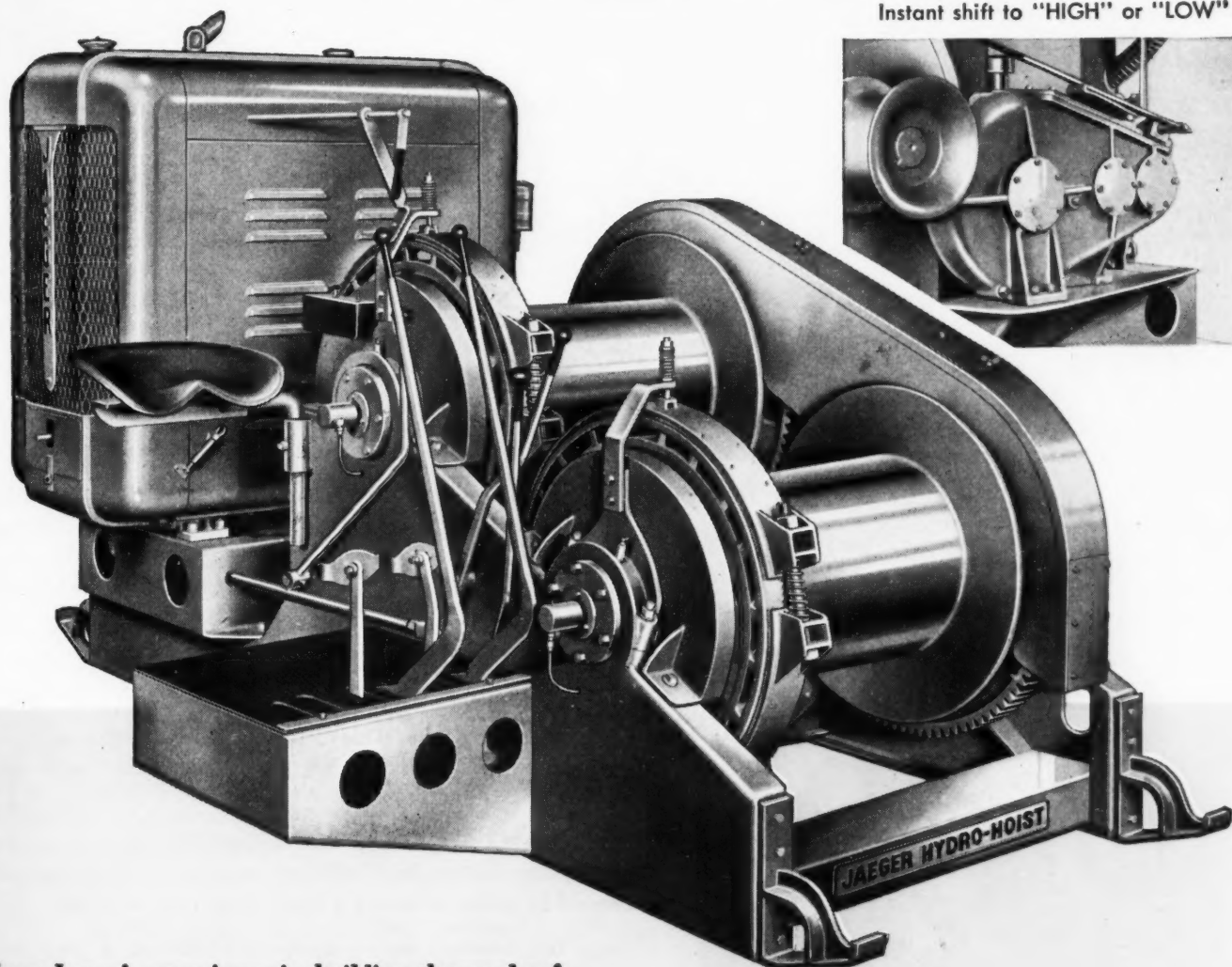
**ALL-STEEL, PRECISION FABRICATED:** No more broken side frames or drum flanges. Rigid, strong, yet lighter in weight.

**AUTOMOTIVE TRANSMISSION:** Use gas or electric power interchangeably at 1800 rpm. Quick change-over. Economical, efficient.

**25 TO 40 HP "UTILITY" HOISTS:** Single or double drum; gas or electric power.

**60 TO 100 HP "ERECTORS":** 1, 2 or 3 drums. Easy to add third drum to 2-drum hoist in the field. Gas, electric or diesel. Anti-friction bearings. Hydraulic-controlled boom swinger if desired.

Instant shift to "HIGH" or "LOW"



From Jaeger's experience in building thousands of hoists comes this revolutionary machine to speed your work, cut costs, often save buying a second hoist.

Merely shift the lever on the 2-speed transmission to select tremendous "low gear" line pull for the heaviest hoisting operation, or to select "high gear" line speed for the fast handling of lighter loads.

Merely touch the hydraulic levers to feel and control all hoisting operations—handle loads quickly, easily, accurately, safely. The same type controls have been used

for years on giant cranes, shovels, big road graders and other machinery.

Change from gasoline to electric power merely by coupling standard squirrel cage motor direct to transmission with flexible coupling and adapter bracket.

In every feature of construction, Jaeger 2-Speed Hydro-Hoists are years ahead of the field. See your Jaeger distributor or send today for Catalog H-8.

**THE JAEGER MACHINE CO., Columbus 16, Ohio**

REGIONAL OFFICES: 1504 Widener Bldg., Philadelphia 7, Pa.; 226 N. La Salle St., Chicago 1, Ill.; 235 American Life Bldg., Birmingham 1, Ala.



# JAEGER ENGINEERED for la

Steady 90-100 lbs. pressure, in up to 70% larger air receivers, means full production from air tools.

## more air is THERE



## more air is THERE



2 heavy duty wagon drills, under the full pressure of 600 cu. ft. of air per minute from a Jaeger Model 600, drill 20% to 30% more daily footage than you can get with any 500 ft. compressor.

Companies that watch their costs are using Jaeger "AIR PLUS" Compressors in all sizes from 60 to 600 cfm—for faster production, for the economy of Jaeger's "Fuel Miser" speed control, for the simple, rugged Jaeger design that requires less attention on the job and minimum expense of upkeep.

On thousands of jobs, contractors are finding that they get faster production with a Jaeger "AIR PLUS" than with other compressors of the same rated capacity.

That's because Jaeger engineers designed to give you steadier air pressure, with a high efficiency compressor and fuel tank recessed to make room for a much larger air receiver.

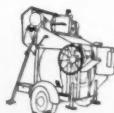
Steady full pressure means top-speed operation of your drills—faster, full-powered blows with pavement breakers, spades and tampers—more production per tool and handler every hour they work.

Jaeger insures you against "down time", too. "AIR PLUS" Compressors are built to the same precision as their engines. Their parts, power plants and performance are individually tested in a \$250,000 laboratory. And leading distributors in 130 cities throughout the U. S. and Canada provide on-the-spot service wherever your jobs may be.

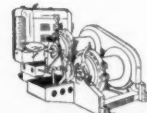
"SURE PRIME" PUMPS  
1½" to 10" sizes



"SPEEDLINE" MIXERS  
3½S to 16S trailers



2-SPEED "HYDRO-HOISTS"  
25 to 100 h.p., 1 to 3 drums



BITUMINOUS PAVERS  
Latest type with quick  
8-12½ ft. adjustability

DIA

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entec  
conc  
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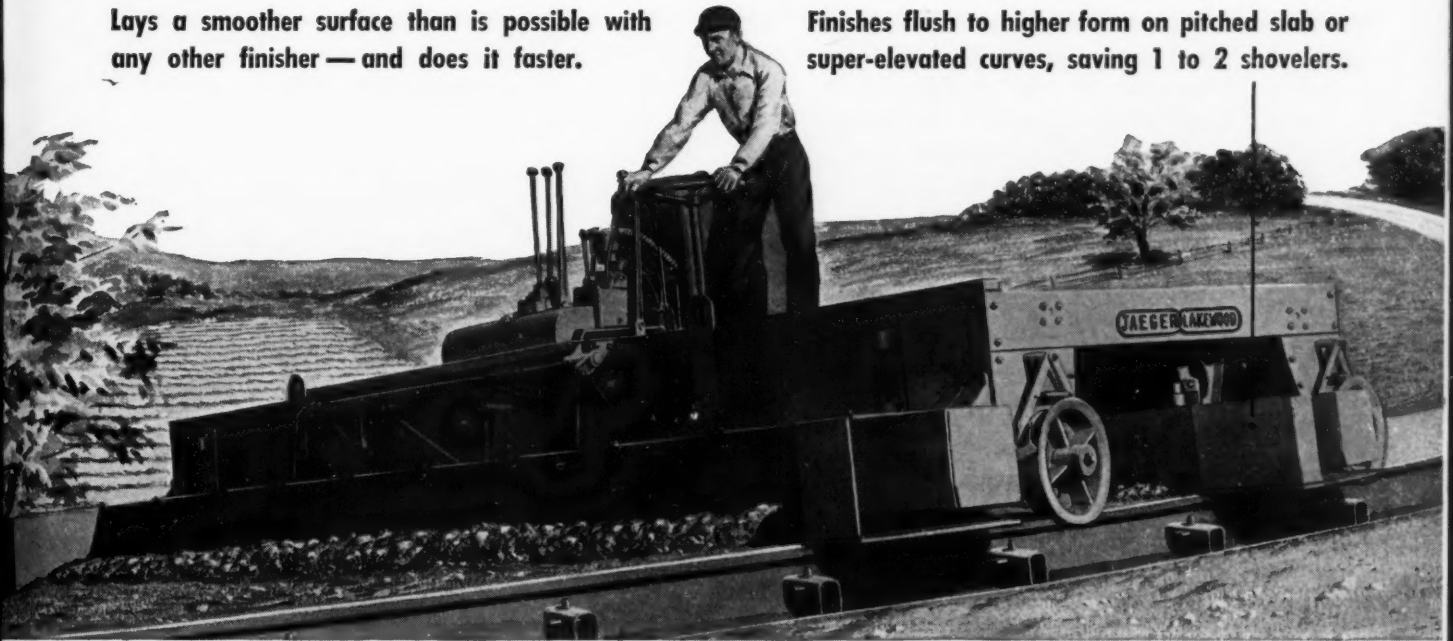


# labor-saving mass production

## DIAGONAL SCREED FINISHING — the modern method behind mass-production pavers

Lays a smoother surface than is possible with any other finisher — and does it faster.

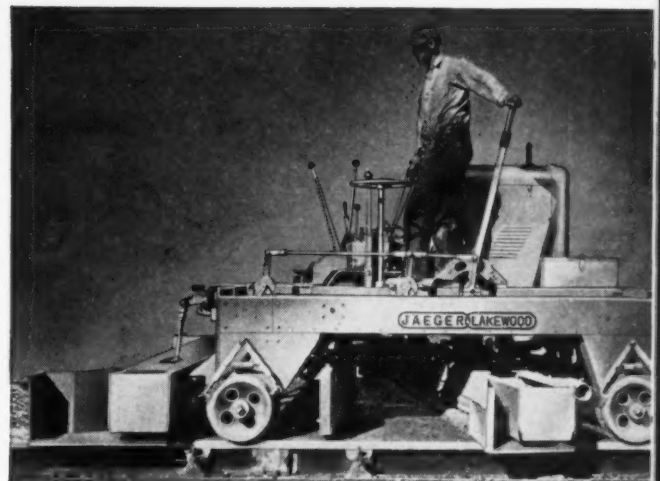
Finishes flush to higher form on pitched slab or super-elevated curves, saving 1 to 2 shovelers.



The Type "X" Diagonal Screed Finisher, designed and patented by Jaeger, provides a basic improvement in finishing concrete pavements.

Where slab is pitched or super-elevated, you simply set the rear screed at whatever angle is needed to carry material uphill and compact it solidly against the higher form. No other finisher can do this.

Because the rear screed operates diagonally to the transverse front screed, it acts to average out irregularities left by the front screed, insuring a smoother surface and reducing hand work and equipment behind the finisher. Stiff mixes, worked at an angle by the final screed, can be finished faster without tearing. A wide range of screed speeds, *all independent of traction*, provides flexibility and finishing capacity to match the biggest dual drum pavers built today.

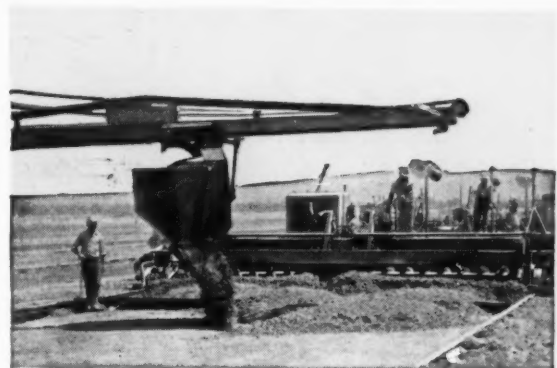


## Re-mixing, compacting spreader gives you a mass-production "team"

Important new improvements in Jaeger 1948 model Concrete Spreaders provide capacity and flexibility never before available to work with the Type "X" Diagonal Screed Finisher. One Spreader and one Finisher operator can spread, strike-off and smoothly finish the enormous output of two 34E dual drum pavers. Makes today's road builder an efficient mass-producer of square yards of pavement, at lower and more accurately pre-determined cost per yard.

No other spreading method provides the re-mixing and compacting action of the Jaeger spreading screw which positively eliminates segregation and resulting honeycomb and produces a denser, more uniform pavement as proved by numerous core tests.

Wide, oscillating strike-off can be furnished if desired, for striking off concrete or for spreading and finishing bituminous material.

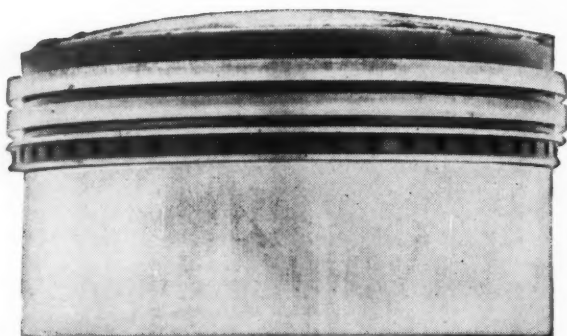


See your Jaeger distributor before bidding or laying out your jobs. Ask him or write us, for complete catalogs on Jaeger-engineered equipment.

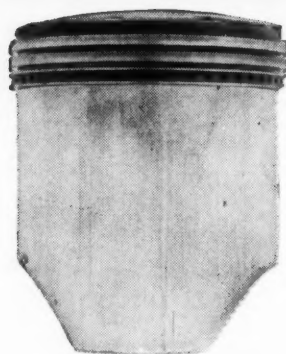
**THE JAEGER MACHINE CO., Columbus 16, Ohio**

regional offices: 1504 Widener Bldg., PHILADELPHIA 7 • 226 N. La Salle St., CHICAGO 1 • 235 American Life Bldg., BIRMINGHAM 1

# How to get extra protection for your fleet engines... Stanolube HD



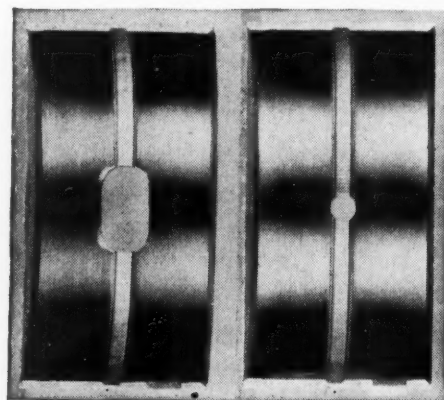
**Free rings.** Ring-groove deposits are greatly minimized because of the effective oxidation-inhibiting and detergent action of Stanolube HD.



**Low piston and cylinder wear.** Stanolube HD stands up in the face of high temperatures. A strong, protective film of oil is always present to prevent wear of pistons, cylinders, and rings.



**More effective filter operation.** Stanolube HD stops surface clogging of oil filters. Because of the oil's detergent-dispersant action, contaminants are held suspended in a finely divided state in the oil; this allows them to penetrate the filter medium, where they are removed. Such action keeps filters functioning effectively between changes.



**Longer-lasting bearings.** The oxidation inhibitor in Stanolube HD prevents the forming of deposits that clog oil screens and oil passages and cause excessive bearing wear. High film strength further reduces scuffing and wear of bearing surfaces. A corrosion inhibitor prevents the formation of harmful acids that may cause pitting of bearing surfaces.

Complete freedom from troublesome deposits means less wear, maintenance, and downtime on any type of fleet engine. A test of Stanolube HD will prove these advantages to you. Write Standard Oil Company (Indiana), 910 South Michigan Ave., Chicago 80, Ill.

**STANDARD OIL COMPANY (INDIANA)**

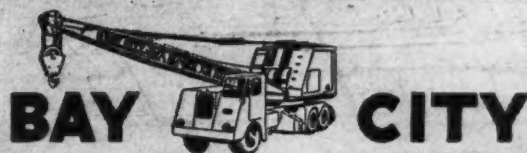
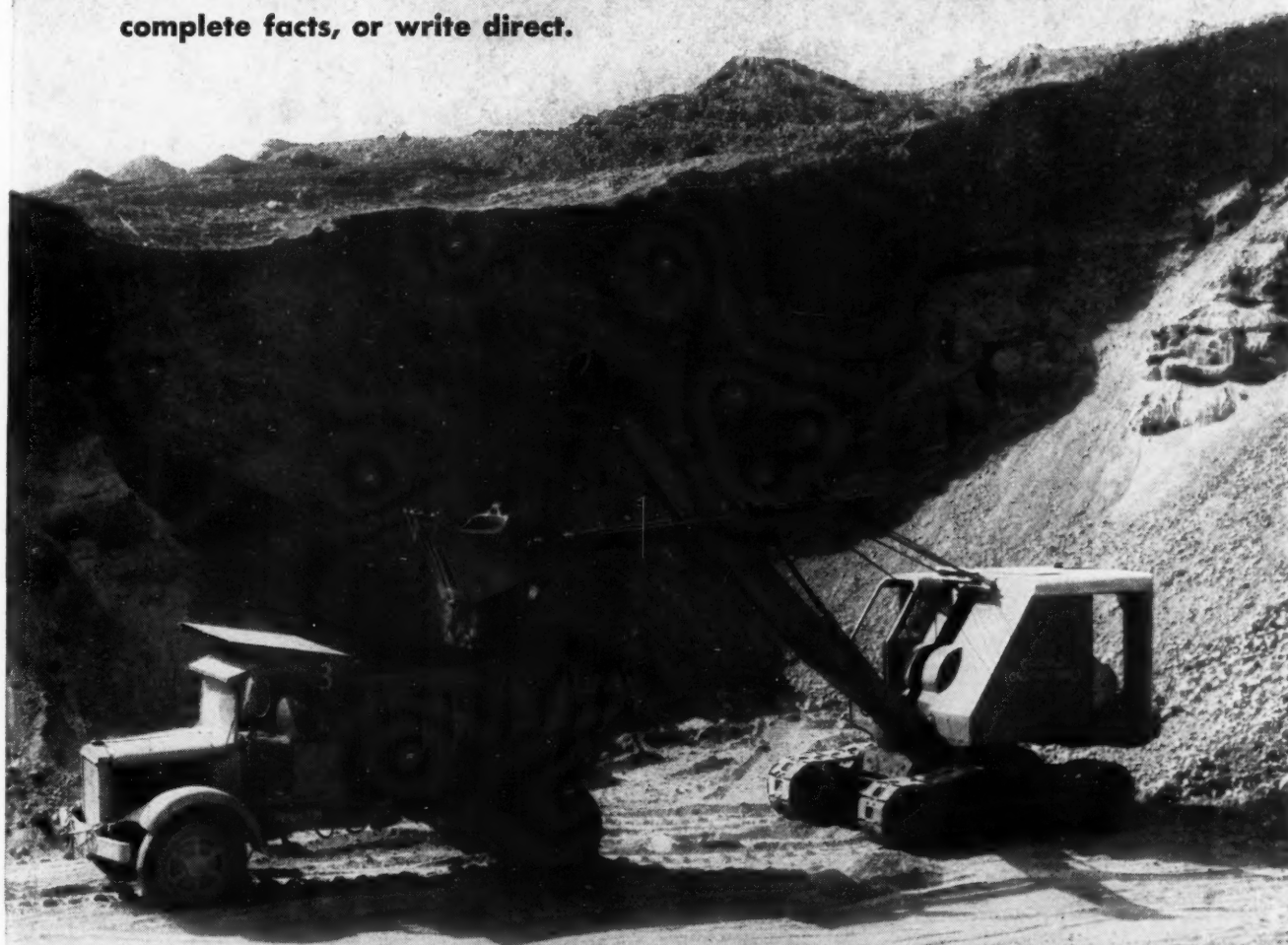


**W**ant to speed your excavating and material handling at lower cost?

Do as Grasso Construction Co. does—depend on **BAY CITY**. This leading contractor in Bridgeport, Conn., operates a fleet of **BAY CITY** equipment,

including this heavy duty  $\frac{3}{4}$  yard shovel loading sand and gravel.

There's a **BAY CITY** for every purpose. See your nearby dealer for complete facts, or write direct.

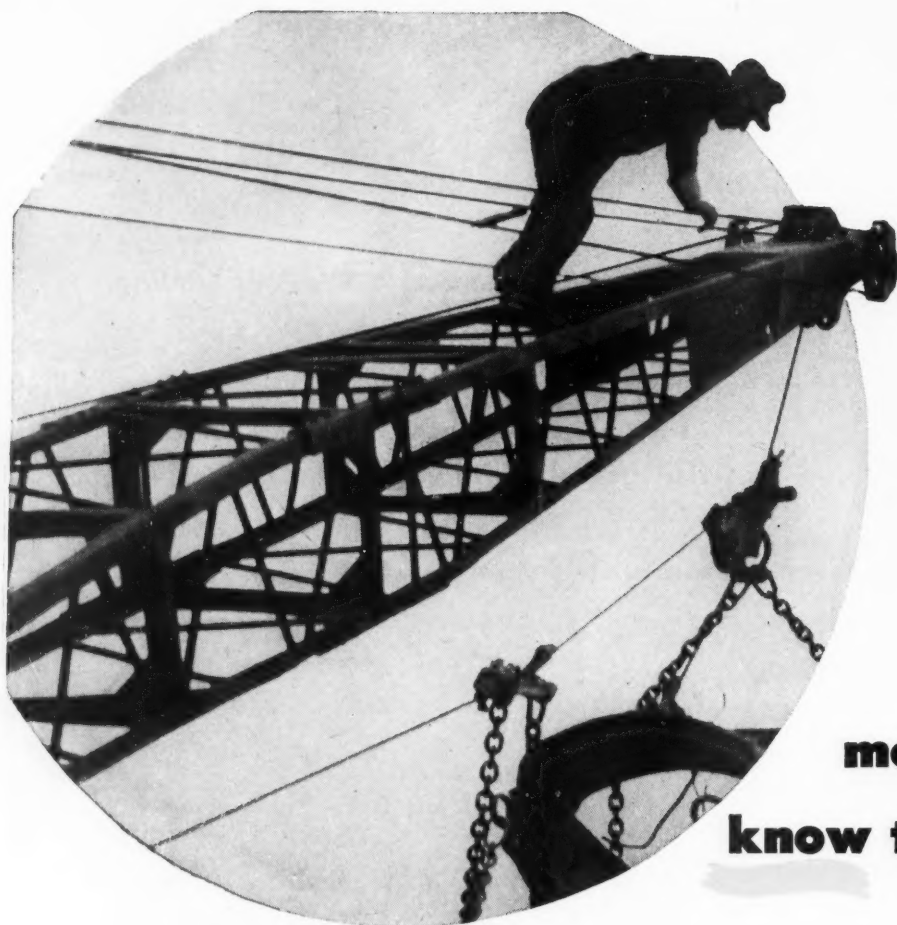


**SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS**

**BAY CITY SHOVELS, INC., Bay City, Michigan**

SEE YOUR NEAREST DEALER for Bay City excavating and material handling equipment in sizes from  $\frac{3}{8}$  to  $1\frac{1}{4}$  yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.





**men who  
know the ropes...**

# take **Tiger Brand** *Excellay Preformed*

**every time!**

**M**ADE to close tolerances and unvarying quality standards by the world's largest manufacturer of wire rope, U·S·S American **TIGER BRAND Excellay Wire Rope** possesses strength, toughness, and flexibility in the right combination to stand up tirelessly under long, hard service. See or call your supplier today. Our wire rope experts are readily available in the field to help you determine your needs and handle out-of-the-ordinary problems. No company offers a more complete engineering service.

**IMMEDIATE DELIVERY**

*Any Type . . . All Sizes . . . Everywhere*

**AMERICAN STEEL & WIRE COMPANY**

*Cleveland, Chicago and New York*

**COLUMBIA STEEL COMPANY**

*San Francisco*

*Tennessee Coal, Iron & Railroad Company, Birmingham,  
Southern Distributors*

*United States Steel Export Company, New York*

**UNITED STATES STEEL**



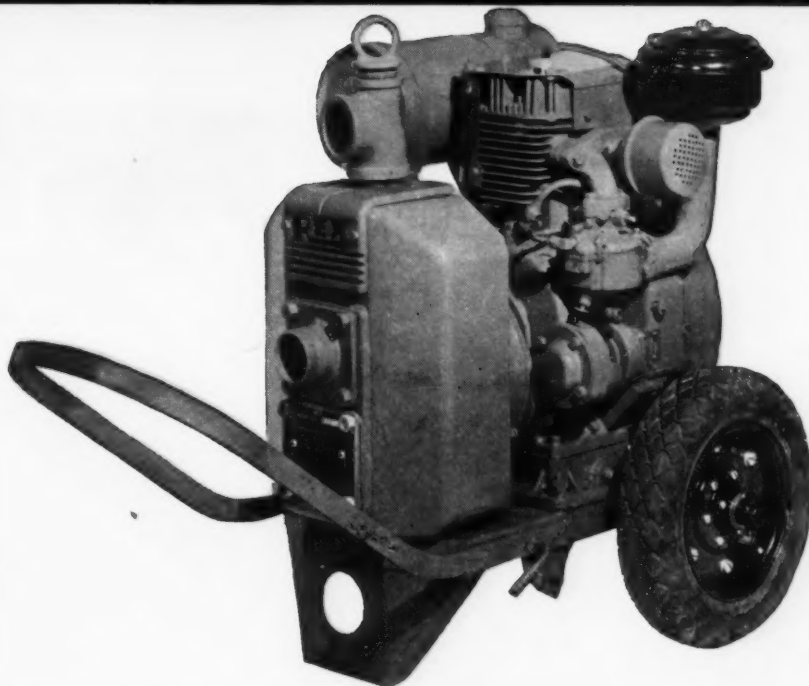
**EXCELLAY PREFORMED**

**THE BIG DEMAND IS FOR TIGER BRAND**

# "Easy Flow"

for

## EASY PUMPING



### DEPENDABILITY PLUS

A Rex "Easy Flow" Pump is dependability itself... not for just one season but for many a year of tough service. Note the rugged press-formed pump body with its glass-smooth steel interior surface. This frictionless surface permits the smoothest flow of water through the pump... increases pump efficiency. There are no rough, pitted surfaces to encourage corrosion and early wear. No priming delays with this design. And note the straight line suction intake. Water takes a slightly downhill flow right to the eye of the impeller with least possible friction loss.



### SUSTAINED EFFICIENCY

Rex "Easy Flow" has a replaceable liner plate and a lifetime seal. But, here's the real secret behind the ability of the Rex "Easy Flow" to give you new pump efficiency for the lifetime of the pump. The *exclusive* adjustable air peeler is easily adjusted to restore original clearance with the impeller to compensate for wear... assuring the ability in an old pump to give you original priming efficiency at maximum suction lifts.



### LIGHT WEIGHT

With its press-formed body and volute, the Rex "Easy Flow" is approximately 30% lighter than cast styles. It's easy to handle... easy to spot. Yet this pump is the most durable in the field... proved in actual applications. Engine is located over the wheels so you lift only the weight of the pump when wheeling from spot to spot.

For all the facts, see your Rex Distributor or write for your copy of Bulletin No. 47-12. Chain Belt Company. 1664 West Bruce Street, Milwaukee 4, Wis.



CONSTRUCTION MACHINERY

# NEW



# UTILITY



## **Completely Portable Plant Has Capacity in 60 t. p. h. Range . . . . . Produces All Types of Mixes**

Here is the industry's most advanced Bituminous Mixing Plant . . . completely portable, built for maximum simplicity in erection and operation, and precise control of measurement and proportioning of aggregate and bitumen. The new Utility Mixing Plant minimizes the time required for setting up or dismantling; its three basic units tow behind ordinary trucks or tractors—and it has the versatility to produce all types of mixes, including the highest types.

Many new basic improvements in design include the unique 845 Mixer with two-bin Gradation Control Unit combined on a single chassis. An auxiliary two-bin Gradation Unit is optional where three or four-aggregate mixes are required . . . you can get the exact plant your mix requires—with a capacity that meets the broadest range of your jobs. In every way the 845 Utility Plant climaxes years of achievement by Barber-Greene engineers in the development of Bituminous Mixing Equipment that makes the most of men, money and materials.



### **UTILITY PLANT HAS BASIC ADVANTAGES**

- ★ True portability
- ★ Faster erection—no cribbing necessary
- ★ Wide adaptability
- ★ Built-in Gradation Control
- ★ Built-in Elevators on Dryer and Mixer
- ★ High Discharge Dryer eliminates hot elevator pit
- ★ Two, three or four-bin aggregate gradation
- ★ Only two power units
- ★ Four-cyclone Dust Collector
- ★ Lowest maintenance cost per yard produced
- ★ Ask your Barber-Greene distributor or write for full information.

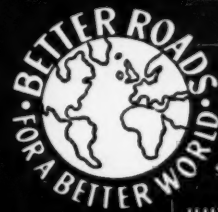
# Barber-Greene

AURORA, ILLINOIS



# BITUMINOUS PLANT

**NEW ALL-UNIT PORTABILITY!**  
**... NEW EASE IN ERECTION!**



45th

Annual Convention and  
Exhibition  
SOLDIER FIELD  
CHICAGO

JULY 16-24, 1948

## NEW PORTABLE 845 MIXER-GRADATION UNIT

... For precision volumetric measuring, proportioning and mixing of aggregate and bitumen.

## NEW PORTABLE 835 DRYER

... With built-in Reciprocating Feeder and High Discharge Elevator which eliminates the need for a hot elevator pit.

## NEW PORTABLE 852 DUST COLLECTOR

... Four-cyclone type: contains power unit for Dryer, Cold Elevator, Feeder, Hot Elevator, Screens, Dust Collector, Exhaust Fan and Low-pressure Blower.



*Constant Flow  
Equipment*

# Machine Bolts



**SPECIFICATIONS:** Usually made to ASTM Specification A-7. Also furnished in many standard grades of carbon or alloy steel.

**SIZES:** Made in a wide range of sizes, sufficient to meet practically every need.

**HEADS:** Furnished with Square, Hexagon, Tee, Button and Countersunk Heads.

**THREADS:** Either cut or rolled. Standard thread is American Standard Coarse, Class 2 fit, though other types can be furnished.



**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

*Other Bethlehem Construction Fastenings*

**SPIKES . . WASHERS . . BOLTS and NUTS . . TIE-RODS . . TURNBUCKLES . . CLEVISSES**

DRAGLINE



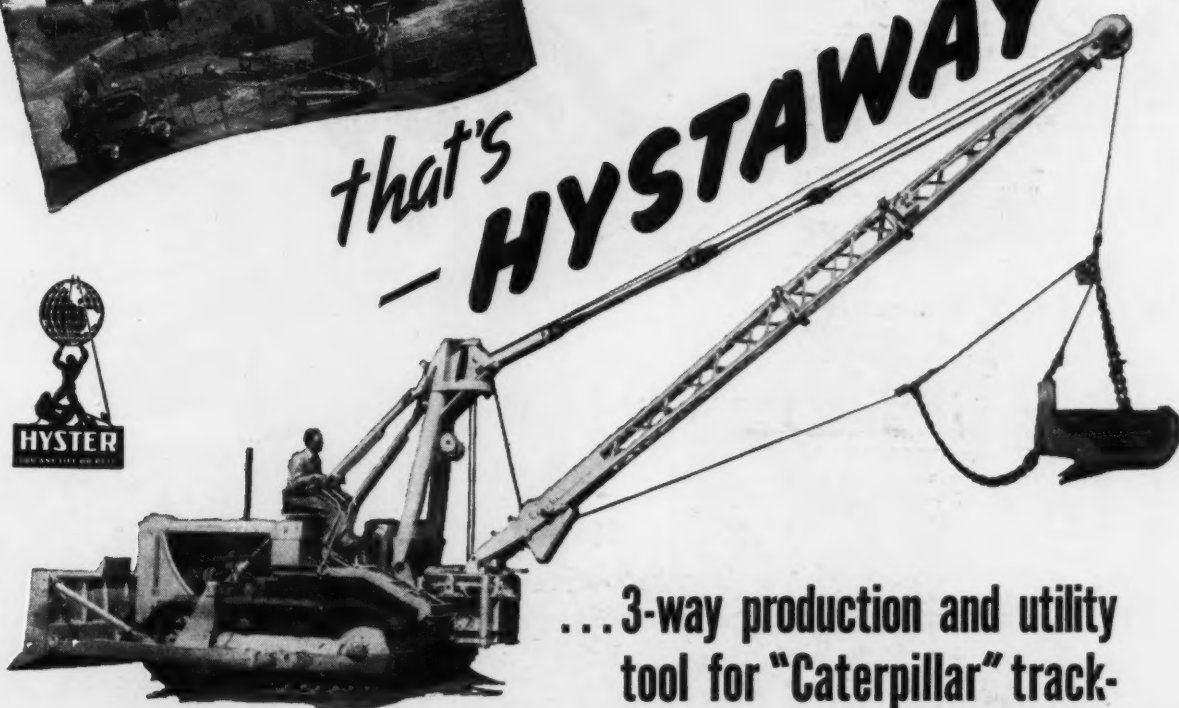
CLAMSHELL



CRANE



that's  
— **HYSTAWAY**



... 3-way production and utility  
tool for "Caterpillar" track-  
type tractor and bulldozer

Take all of the good work features of a dragline, clamshell and crane—combine them in one unit—and you have the Hystaway. **PUT HYSTAWAY ON A "CATERPILLAR" D8, D7 OR D6 WITH BULLDOZER** and you have a money-making machine.

Hystaway is both a production and utility tool. On a new or old "Caterpillar" D8, D7 or D6, it can be mounted by 2 men in 2 hours and taken off in 1 hour (after initial installation).

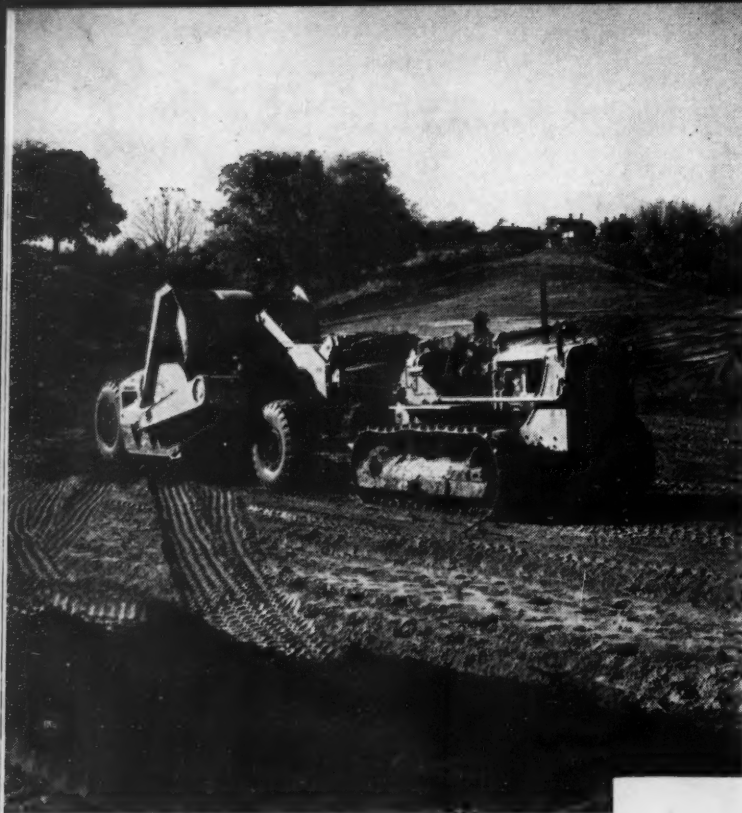
Hystaway plus "Caterpillar" track-type mobility

is setting performance records for 1/2-yard machines that make important news to construction men: increased production; lower job costs; faster work schedules . . . Your "Caterpillar" distributor can arrange a Hystaway demonstration and provide *current delivery*. See him soon. Write for detailed literature.

**HYSTER COMPANY**

2921 N. E. CLACKAMAS ST., PORTLAND 8, OREGON  
1821 NORTH ADAMS STREET, PEORIA 1, ILLINOIS





**Arizona** "Caterpillar" D7 Tractor and No. 70 Scraper leveling farmland for cotton near Buckeye. Owner J. C. Higgins says: "The No. 70 is a dandy. Ease of loading is what I like best. We can fill the scraper without the pusher. This saves me money, as I can have the pusher tractor working on some other job."

**Iowa** "Caterpillar" D7 Tractor and No. 70 Scraper leveling ground for Muscatine athletic field. Owner Lee Osborne says: "If I can have two months more of good weather, this scraper won't owe me a thing. It's a fine scraper and it has a fine dealer service behind it. I wouldn't think of buying this type of equipment from anyone but 'Caterpillar'."

**Indiana** "Caterpillar" D7 Tractor and No. 70 Scraper grading road for subdivision. Lowell Engineering Company's Lyle W. Brown says: "This scraper makes loading easier—can load in 2nd gear. Swung low to ground for balance. Can get in close quarters. Large tires give good flotation in sandy soil. Allows good visibility of road and cutting edge."

*They all*



**New York** "Caterpillar" D8 Tractor and No. 80 Scraper stripping overburden for gravel pit to supply sub-base for highway. Owner, Rochester Concrete Construction Co., Inc. Operator Leon Jackson says: "It's the easiest scraper to load I've ever used and I can dump in 6th gear."



No. 70  
cotton  
says:  
st. We  
money,  
r job."



**California** "Caterpillar" D8 Tractor and No. 80 Scraper loading and dumping shale rock on county road widening job. For Monterey County Highway Department, Mr. H. Cozzens says: "We do a lot of changing from 'dozer to scraper work and appreciate the ease of quick mounting. The No. 80 Scraper is the easiest and fastest loading, and operator says cable control is the smoothest he has ever used."

**Colorado** "Caterpillar" D8 Tractor and No. 80 Scraper building 25-foot fire-wall for refinery tank yard in soft, sandy soil. Owner Fred DeBetz says: "I have used most makes of scrapers and this No. 80 'Caterpillar' is by far the best I have ever used."

*cheer for*

**"CATERPILLAR" SCRAPERS**

The success of "Caterpillar" products has always been based on outstanding performance in the field. As with Tractors and Engines, it is the fine performance of "Caterpillar" Scrapers that brings from owners and operators in all parts of the country such statements as are quoted here.

(The standard model No. 70 Scraper is priced at \$6050; the No. 80, \$8365—both F.O.B. Peoria, subject to change without notice.)

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS



**CATERPILLAR**  
REG. U. S. PAT. OFF.  
**DIESEL**  
ENGINES • TRACTORS  
MOTOR GRADERS  
EARTHMOVING EQUIPMENT

**Washington** "Caterpillar" D7 Tractor, No. 7S Bulldozer and No. 70 Scraper building new road to open up new farmland. Messrs. A. N. Stanley, James Reilly and Charles L. Hall, Commissioners of Clark County, owner, write: "The county's past success with 'Caterpillar' Motor Graders prompted us to buy this new 'Caterpillar' Diesel Tractor and Scraper. We like them so well that we are now considering the purchase of another D7 Tractor and No. 70 Scraper."



# LeTOURNEAU USES...

## Velvetouch

All-Metal Clutch Facings  
and Brake Linings



### on the New Model C Tornado dozer



Power control unit  
brake band lining.



Steering brake disc.



Steering and transmission  
clutch disc.



Power control unit and  
transmission clutch disc.

Fast, highly maneuverable, and extremely powerful . . . LeTourneau relies on Genuine Velvetouch all-metal clutch facings and brake linings for accurate, economical power control. Because the scientific mixture of powdered metals, used in making Velvetouch, minimizes chattering and slipping . . . insures smooth, positive operation. You'll find Genuine Velvetouch lasts longer, too . . . for being all-metal, it won't rot in oil or "burn" like conventional friction material. Send for details today.

THE S. K. WELLMAN CO., 1374 East 51st St., Cleveland 3, Ohio

FOR BRAKE AND CLUTCH USE

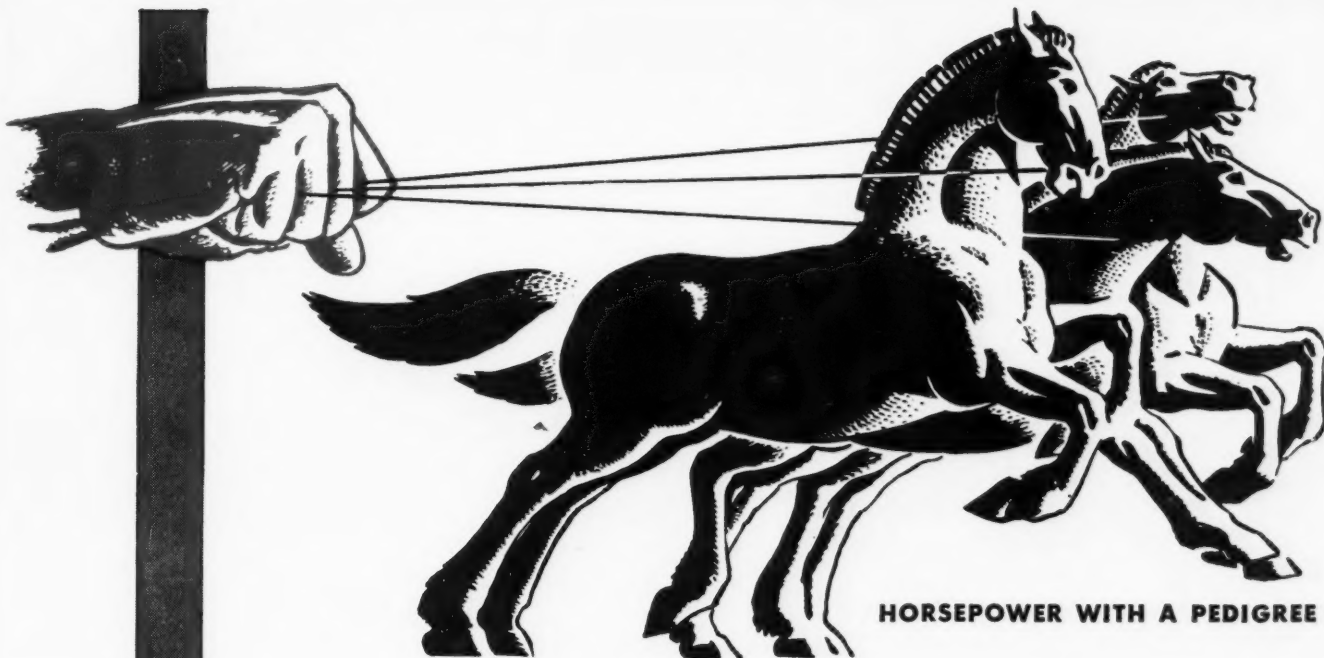
## Velvetouch

#### WAREHOUSING CENTERS

ATLANTA . . . . . 119 14th St. N.E.  
BOSTON . . . . . 171 Brighton Ave.  
CHICAGO . . . . . 2800 S. Parkway  
CLEVELAND . . . . . 1392 E. 51st St.  
DALLAS . . . . . 3407 Main St.  
LOS ANGELES . . . . . 1110 S. Hope St.  
PHILADELPHIA . . . . . 97 E. Montana St.  
PORTLAND . . . . . 636 N.W. 16th Ave.  
SAN FRANCISCO . . . . . 424 Bryant St.  
TORONTO, ONTARIO, CANADA  
The S. K. Wellman Co. of Canada,  
Ltd. . . . . 197 Laird Dr.

WORLD'S LARGEST MANUFACTURERS OF ALL-METAL CLUTCH FACINGS AND BRAKE LININGS

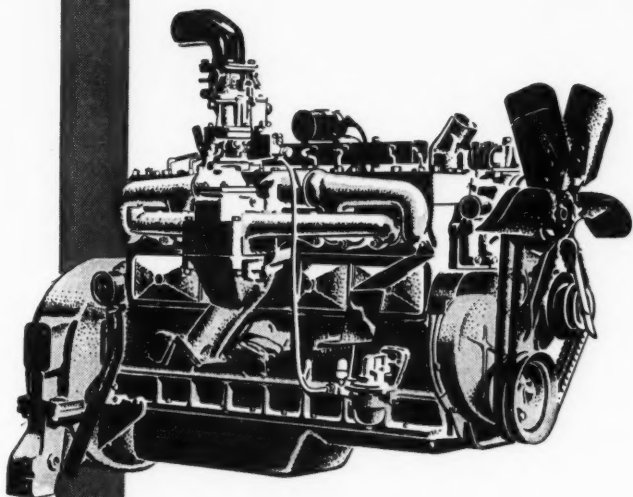




**HORSEPOWER WITH A PEDIGREE**

## **FOR A BETTER DAY'S WORK**

**ON FARMS—IN FORESTS—IN OIL FIELDS—IN INDUSTRY AND ON THE HIGHWAYS!**



• Throughout America—the world, in fact—powered equipment is the cutting tool of progress. And in every place where gasoline engines are depended upon for flexible, un-failing power, you'll find Chrysler Industrial Engines—Horsepower With a Pedigree. Designed and engineered to meet the particular needs of equipment manufacturers and users, Chrysler Industrial Engines are winning new fame—day in, day out—because they are built *For A Better Day's Work!*

# **CHRYSLER**

## **INDUSTRIAL ENGINES**

INDUSTRIAL ENGINE DIVISION, CHRYSLER CORP., 12200 E. JEFFERSON, DETROIT 31, MICH.

# Gulf Quality Lubricants and Fuels

*help maintain rapid pipe delivery service  
on 78-mile water line*



Lock Joint Pipe Company has the contract to provide 48-inch, 36-inch, and 24-inch reinforced pre-stressed concrete cylinder pipe for the 78-mile water pipeline now being constructed in northern Michigan. This is an \$11,500,000 project. The 48-inch line will convey water from Lake Huron at Whitestone Point to 36-inch and 24-inch branch lines that will deliver it to the cities of Saginaw and Midland, Michigan.

"TO KEEP AHEAD of the laying contractors on this rush job, we have to keep our trucks moving fast—and we can't take chances on breakdowns," says the Lock Joint Pipe Company. "That's why we specify Gulf lubricants and fuels. These quality petroleum products keep our trucks continuously on the job, and we have rock-bottom maintenance costs."

On all types of construction projects, Gulf quality petroleum products play an important part in keeping equipment rolling. Their extra value shows up particularly on tough schedules and under punishing operating conditions. Gulf lubricants provide greater protection against delays caused by mechanical troubles — and Gulf

fuels help contractors get an extra margin of performance from their mechanized equipment.



**Gulf Oil Corporation • Gulf Refining Company**

*Division Sales Offices:*

Boston • New York • Philadelphia  
Pittsburgh • Atlanta • New Orleans  
Houston • Louisville • Toledo

# ***THIS ONE MAN WAGON DRILL***

**gives more footage in less time**



## ***EASILY MOVED FROM HOLE TO HOLE***

Pneumatic-tired wheels make handling easy. Wheel brackets may be interchanged, reducing wheel gauge from 51" to 36" for drilling on narrow benches.

## ***QUICKLY SET UP AT ANY ANGLE***

Drill guide is mounted on a universal type saddle, making it extremely flexible and allowing drill to be set at any angle to the cross bar.

## ***LONG DRILL FEED-POSITIVE LOCKING BRAKES***

Too frequent drill changes are eliminated by the long drill feed. No anchor pins are necessary—a spin of the brake wheel locks brakes tightly allowing no movement of the carriage.

# **JOY**

**ROCK DRILLS**

**WAGON DRILLS • AIR COMPRESSORS**

**SULLIVAN DIVISION**

W&D C-1308

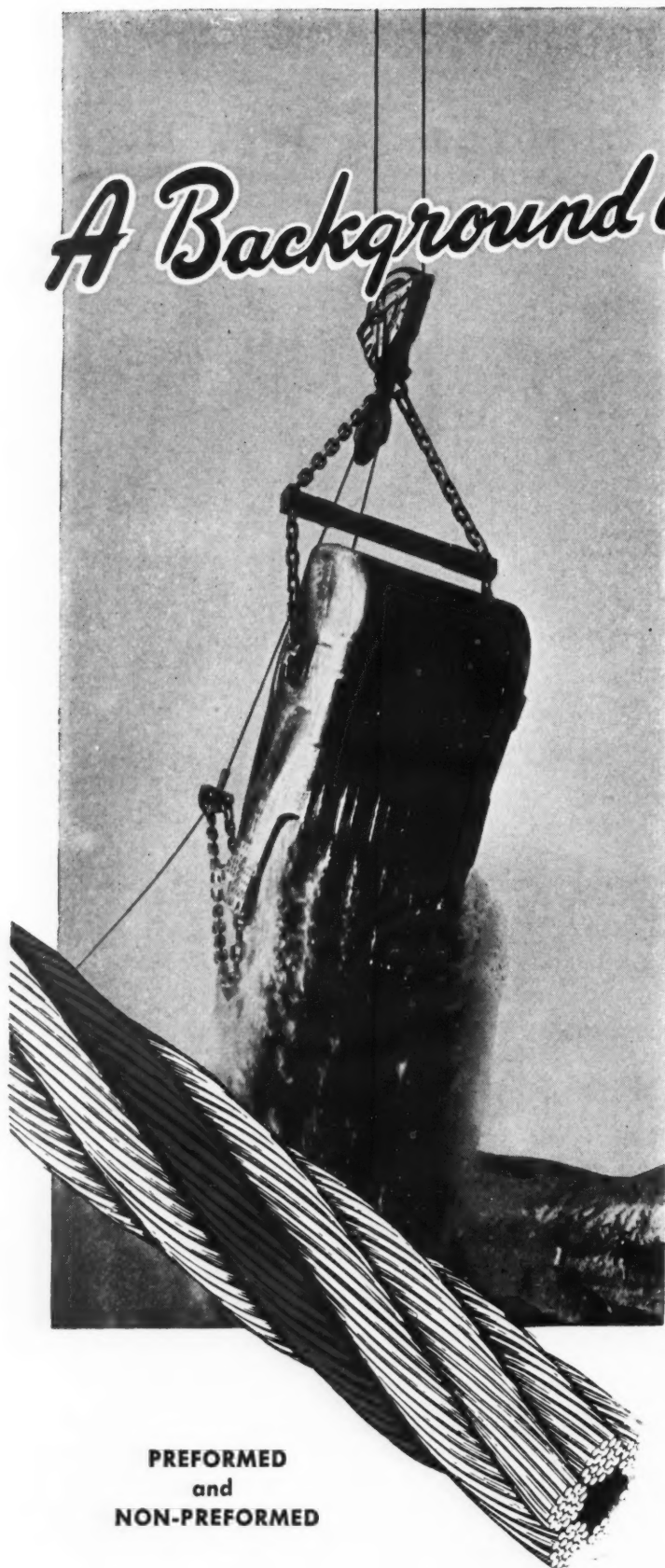
# **JOY MANUFACTURING CO.**

**GENERAL OFFICES: HENRY W. OLIVER BLDG., PITTSBURGH, PA.**





# *A Background of* **PERFORMANCE**

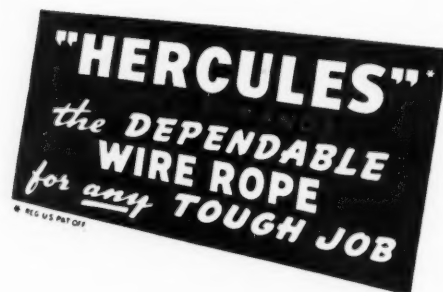


**PREFORMED  
and  
NON-PREFORMED**

When you specify "HERCULES" (Red-Strand) Wire Rope, you select a product that has proved its dependability—time after time—by the acid test of actual service.

Such a long and consistent record of performance is not a matter of chance; instead, it is the result of many definite factors that have always governed the design and manufacture of "HERCULES" (Red-Strand) Wire Rope.

For wire rope qualified to withstand the stresses and strains encountered on tough jobs...use "HERCULES" and benefit by its time and money saving ability.



MADE ONLY BY  
**A. LESCHEN & SONS ROPE CO.**  
ESTABLISHED 1857  
**5909 KENNERLY AVENUE • ST. LOUIS 12, MISSOURI**

NEW YORK 6  
90 West Street

CHICAGO 7  
810 W. Washington Blvd.

DENVER 2  
1554 Wazee Street

SAN FRANCISCO 7  
520 Fourth Street

PORTLAND 9  
914 N. W. 14th Avenue

SEATTLE 4  
3410 First Avenue South

# Buckeye

The Outstanding  $3\frac{3}{4}$  Yard Shovel

Now  
Better  
Than  
Ever\*



Available  
for spring shipment

## \* CHECK THESE NEW FEATURES

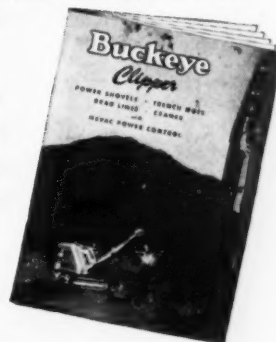
- ✓ 2-piece swing clutch band-velvet smooth operation; easier replacement.
- ✓ Heavier revolving frame; more massive conical roller assembly; hardened steel roller path.
- ✓ Positive locking device on crawler adjusting bolt.
- ✓ Relay valve in dipper trip vacuum chamber speeds dumping.
- ✓ 3-cyl. GM 3-71 diesel engine with hydraulic coupling furnishes greater, smoother, more economical power (optional) and others.

and  
others

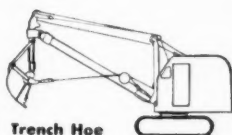
Always a "best buy" because it offers *all* of the construction and operating features that most shovel users want—*plus* Mevac (metered vacuum) power control, the Buckeye Clipper is now better than ever. Buckeye engineers and field men constantly sounding out the hundreds of owners have incorporated feature after feature to make it truly "the users shovel".

Operators like Mevac control—light touch on small levers actuates vacuum boosters which operate shovel—easy on the operator, easy on the shovel. Faster action, greater yardage. Cuts maintenance costs too. Nothing to freeze, heat-up or leak. Only Buckeye Clippers have Mevac control.

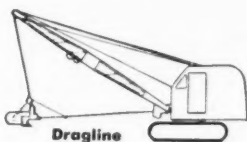
Send for a copy of the new Buckeye Clipper book—pictures Buckeye on all types of excavating, loading and handling jobs—takes the shovel apart before your eyes—explains Mevac control.



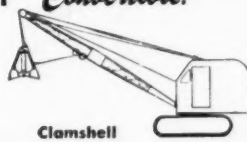
See You At the Road Show



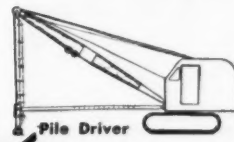
Trench Hoe



Dragline



Clamshell



Pile Driver

FULLY Convertible!

GAR WOOD INDUSTRIES, INC.  
Findlay Division  
FINDLAY, OHIO

# Buckeye

THERE'S AN AUTHORIZED BUCKEYE SHOVEL DEALER NEAR YOU

Other Products: Buckeye Ditchers, Spreaders, Finegraders—Gar Wood Scrapers, Dozercasters, Tipdozers  
—Gar Wood Hoists, Bodies, Winches, Cranes, Tanks — St. Paul Hoists, Bodies, Truck Patrols



# Save this lost time

*Everytime* you shift gears with old style dozers you have to . . .

**1**

**Release clutch**



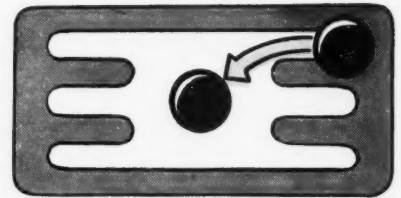
**2**

**Apply brakes**



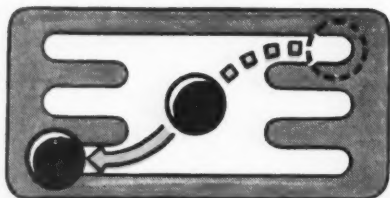
**3**

**Shift—  
forward  
to neutral**



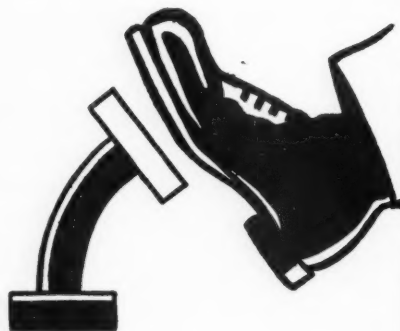
**4**

**Shift—  
neutral  
to reverse**



**5**

**Release brakes**



**6**

**Engage clutch**



(Although many operators shift gears without stopping, this is not a recommended practice.)



**See your LeTourneau Distributor  
NOW for complete information**

W  
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syn  
push  
Bec  
doz  
Ask  
doz  
with

LE



# e with a **TOURNADOZER**

*With modern* **TOURNADOZERS**  
move selector to ratio wanted and

## GO!

FORWARD

REVERSE

**T**OURNADOZER'S constant-mesh Tournamatic Transmission gives you instantaneous selection of any one of four speeds up to 15 m.p.h., forward or reverse . . . no foot-clutching . . . no gear shifting. Air-actuated clutches instantly give you the right gear combination. One movement of the hand speed selector . . . and you are in gear and moving right now!

There is no "let-up" or pause to change gears when moving forward or backward . . . no loss of momentum . . . no jockeying for gears . . . nor travel in lower gears on grades or in tough going because you can't get under way in the higher ratio. With a Tornadozer, there is no danger of stripping gears because operator took a chance on double-clutching and didn't make it. There's no trick in following your load and keeping it rolling, nor in synchronizing your speed with that of the scraper in pusher loading.

Because it's so easy to operate, "skimmers" like this new dozer . . . keep it hitting the ball all day.

Ask your LeTourneau Distributor to show you the Tornadozer in action . . . time study and compare its operation with your old style dozers.

Tournamatic, Tornadozer—LeTourneau—CBS



When opening side-hill cuts, or dozing over steep banks, Tornadozer's fast-acting cable control gives you instant blade response . . . 8-foot-wide gauge, plus short-coupled wheelbase, give greater stability for sure-footed traction. All-around visibility, big-capacity bowl, accurate grading ability and fast forward and reverse speeds all help you move more yards per hour.

**LETOURNEAU**  
PEORIA, ILLINOIS



# TOURNADOZERS

The

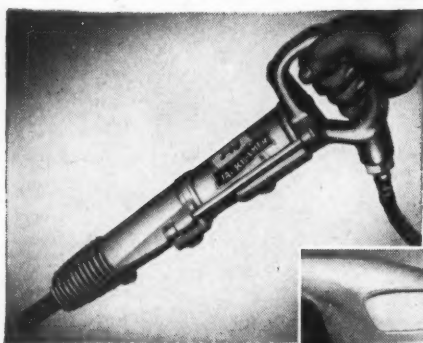


# CONTRACTORS' COMBINATION

IS AN EVER-GROWING

## New AIRLITE—

a small, handy air-powered generator which gives light wherever air is available... output 150 watts, weight 8½ lbs, uses 10 cfm of air at 90 lbs.



## New J-10 UTILITY JACKHAMER—

air-operated, fast, powerful, easy to handle... has automatic rotation and hole-blowing. Weighs only 14 lbs.



## New PAC-AIR—

a complete gasoline engine driven portable compressor (37.5 cfm piston displacement). Easily towed and moved... offers new possibilities for greater use of money-saving air power.

*Demand  
the*



CONTRACTORS'  
COMBINATION

Top quality machines that work as a team... Machines designed, built, sold and serviced by men who know rock excavation... Application "know-how".

# Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

183-14

## COMBINATION with Quality Machines

- MOBIL-AIR COMPRESSORS
- STATIONARY COMPRESSORS
- JACKHAMERS
- DRIFTERS
- STOPERS
- WAGONDRILLS
- PAVING BREAKERS
- STUD JACKBITS
- CARSET JACKBITS
- DRILL SHARPENERS
- STEEL FURNACES
- JACK MILLS
- JACKBIT GRINDERS
- BACKFILL TAMPERS
- CLAY DIGGERS
- SUMP PUMPS
- HOISTS
- RIVETERS
- CHIPPERS
- GRINDERS
- DRILLS
- IMPACT WRENCHES
- AIRLITE GENERATORS
- PUMPS
- DIESEL ENGINES
- BLOWERS



•

THREE-WHEEL  
TANDEM  
PORTABLE

•

THE  
**GALION**  
IRON WORKS & MFG. COMPANY  
*General and Export Offices*  
Galion, Ohio, U. S. A.

Cable Address.....GALION IRON....Galion, Ohio

---





*All Purpose*

**America's Largest Builder  
of Material Handling Buckets**

**SHOVEL  
PULL SHOVEL  
DRAGLINE  
CLAMSHELL**

FRONTS, BOTTOMS, SCOOPS and TEETH shown in color on buckets are 14% manganese steel developing tensile strength up to 120,000 p.s.i. This high percentage manganese steel gives tough, rugged strength for hard service and allows wide set corner teeth for easy entrance in digging. Volume production methods enable us to build a better bucket with amazing economies in manufacturing.

*Experience Counts.* See your shovel man or equipment dealer about PMCO Buckets and Dippers.



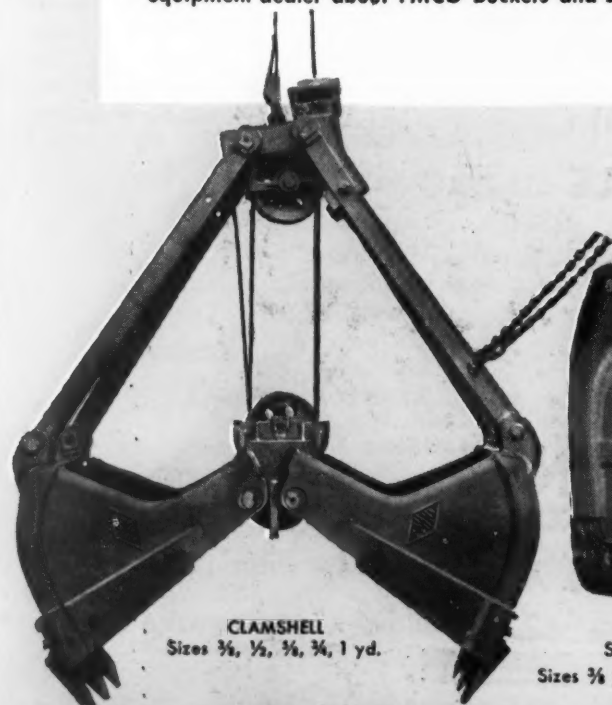
**DRAGLINE**

Perforated Sizes  $\frac{3}{4}$  yd. to 2 yds. 20%-40% lighter than other makes.  
Solid Sizes  $\frac{3}{4}$  yd. to 2 yds.  
Mine Stripping Sizes 2 yds. to 9 yds



**PULL SHOVEL**

Outside Cutter Widths:  
21", 26", 31", 36", 39"



**CLAMSHELL**

Sizes  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{3}{4}$ , 1 yd.



**SHOVEL**

Sizes  $\frac{3}{4}$  yd. to 18 yds.

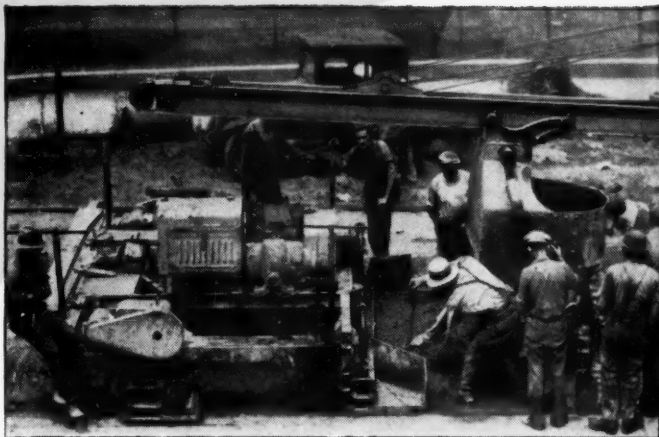
On the  $\frac{1}{2}$  yd. and  $\frac{3}{4}$  yd. Shovel, Pull Shovel, and Dragline Buckets, all teeth are interchangeable—a great advantage to operators.



"Quality Since 1880"

**PETTIBONE MULLIKEN CORP. CHICAGO 51,  
U. S. A.**

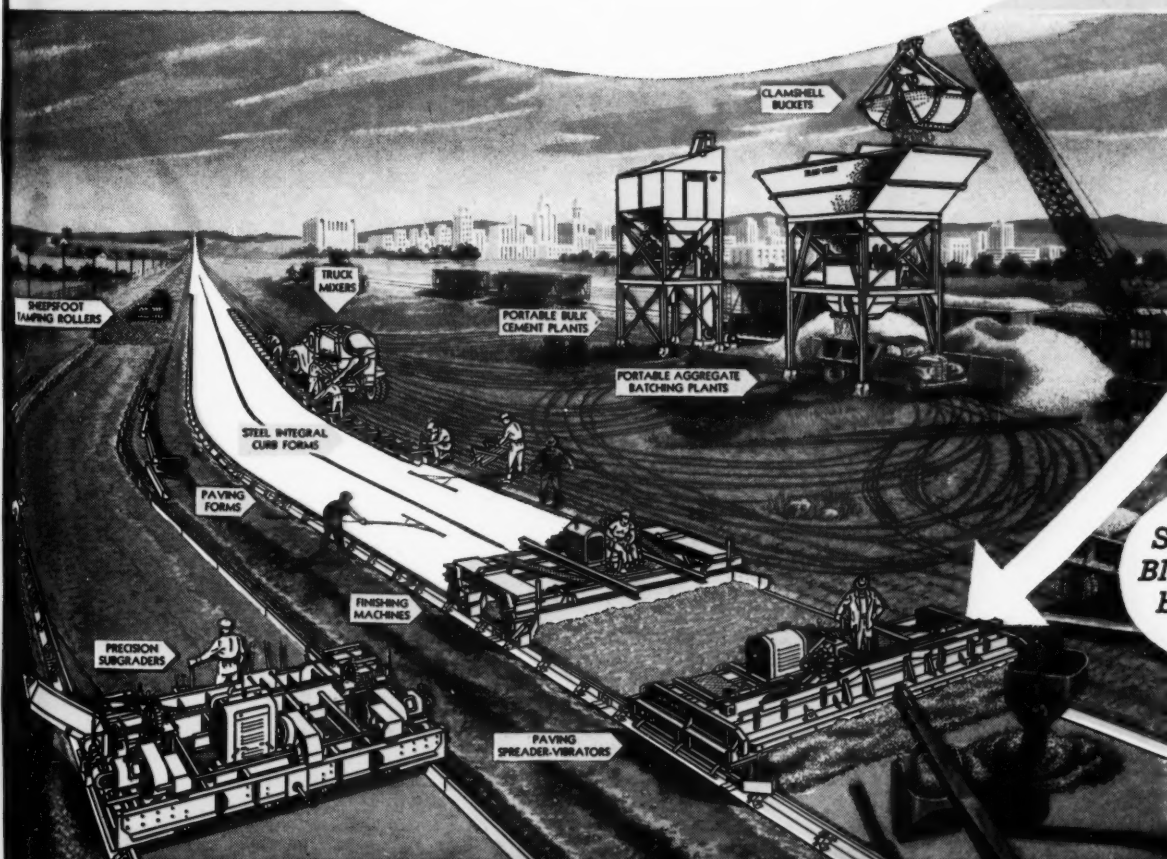
WE OPERATE THE LARGEST AND MOST COMPLETE MANGANESE STEEL FOUNDRY IN THE UNITED STATES



REMEMBER WHEN ?

...remember when  
the FINISHER had to wait  
for the pit men?

*Now - a MECHANIZED*  
**BLAW-KNOX CONCRETE SPREADER**  
*does that job QUICKER...BETTER...AT LOWER COST*  
**WITH ONE OPERATOR**



Visit BLAW-KNOX at the ROAD SHOW



See your nearest  
Blaw-Knox Dealer  
before and after  
you bid.

**BLAW-KNOX DIVISION  
OF BLAW-KNOX COMPANY**  
2605 Farmers Bank Bldg., Pittsburgh 22, Pa.  
New York • Chicago • Philadelphia  
Birmingham • Washington  
Representatives in Principal Cities

The contractor's only *SINGLE* source  
for a complete outfit of job-tested  
concrete paving machinery is...

**BLAW-KNOX**



## RED SEAL SERVICE and PARTS KEEP 'EM RUNNING

There's no question about the extra reliability that specialized Red Seal engines provide. But when, after months or even years of dependable service, a Red Seal engine needs a checkup, it's good to know there's authorized service available — that the Continental Motors service network is as broad as the nation itself. Red Seal parts are low in cost because they're manufactured in volume. Regardless of the specific job for which the engine is intended, many of the parts are built by aircraft engine methods, to aircraft engine tolerances and precision standards. Wherever you are, there's a Continental dealer nearby, to back you up with complete stocks of parts and with factory-trained service. It's another reason why Red Seal engines have become America's Standard.

***Continental Motors Corporation***  
MUSKEGON MICHIGAN

**CONTINENTAL**



**Red Seal**

**ENGINES**



### SCRAPER EVALUATION CHART

|       |  |     |    |  |
|-------|--|-----|----|--|
| 1.    | a. Curved Bowl Bottom                        | 10  | 10 |  |
|       | b. Flat Bowl Bottom                          | 5   |    |  |
|       | a. Offset Cutting Edge                       | 10  | 10 |  |
| 2.    | b. Straight Cutting Edge                     | 5   |    |  |
|       | a. Low Center of Gravity                     | 10  | 10 |  |
| 3.    | b. High Center of Gravity                    | 5   |    |  |
|       | a. Open Top Bowl                             | 10  | 10 |  |
| 4.    | b. Obstructed Bowl Top                       | 5   |    |  |
|       | a. Weight Distribution 45% front<br>55% rear | 10  | 10 |  |
| 5.    | b. Weight Distribution Otherwise             | 10  |    |  |
|       | Weight empty                                 | 6   |    |  |
|       | a. Under 5% variation                        | 2   |    |  |
| *6.   | b. 5% to 15% variation                       | 10  | 10 |  |
|       | c. Over 15% variation                        | 5   |    |  |
|       | a. Interchangeable Tires—Front & Rear        | 10  | 10 |  |
| 7.    | b. Non-interchangeable Tires                 | 5   |    |  |
|       | a. Positive Forced Ejection                  | 10  | 10 |  |
| 8.    | b. Gravity Dump                              | 7   |    |  |
|       | a. High Apron Lift                           | 2   |    |  |
|       | b. Medium Apron Lift                         |     |    |  |
| **9.  | c. Low Apron Lift                            |     |    |  |
|       | General Maintenance & Serviceability         | 10  | 10 |  |
|       | Characteristics                              | 6   |    |  |
| 10.   | a. Superior                                  | 2   |    |  |
|       | b. Average                                   |     |    |  |
|       | c. Inferior                                  |     |    |  |
| Total |  | 100 |    |  |

A black and white photograph of a bulldozer, viewed from a side-rear angle. The bulldozer is positioned on a light-colored, uneven ground surface. It has a large, rectangular blade at the front, which is slightly raised. The bulldozer has two large, treaded tires on the right side and a smaller, solid tire on the left side. Various parts of the bulldozer are labeled with numbers 1 through 9, with lines pointing to them. The numbers are: 1 (pointing to the front blade), 2 (pointing to the front tire), 3 (pointing to the rear tire), 4 (pointing to the rear blade), 5 (pointing to the rear tire), 6 (pointing to the front blade), 7 (pointing to the front tire), 8 (pointing to the rear blade), and 9 (pointing to the rear tire).

# LAPLANT CHOATE

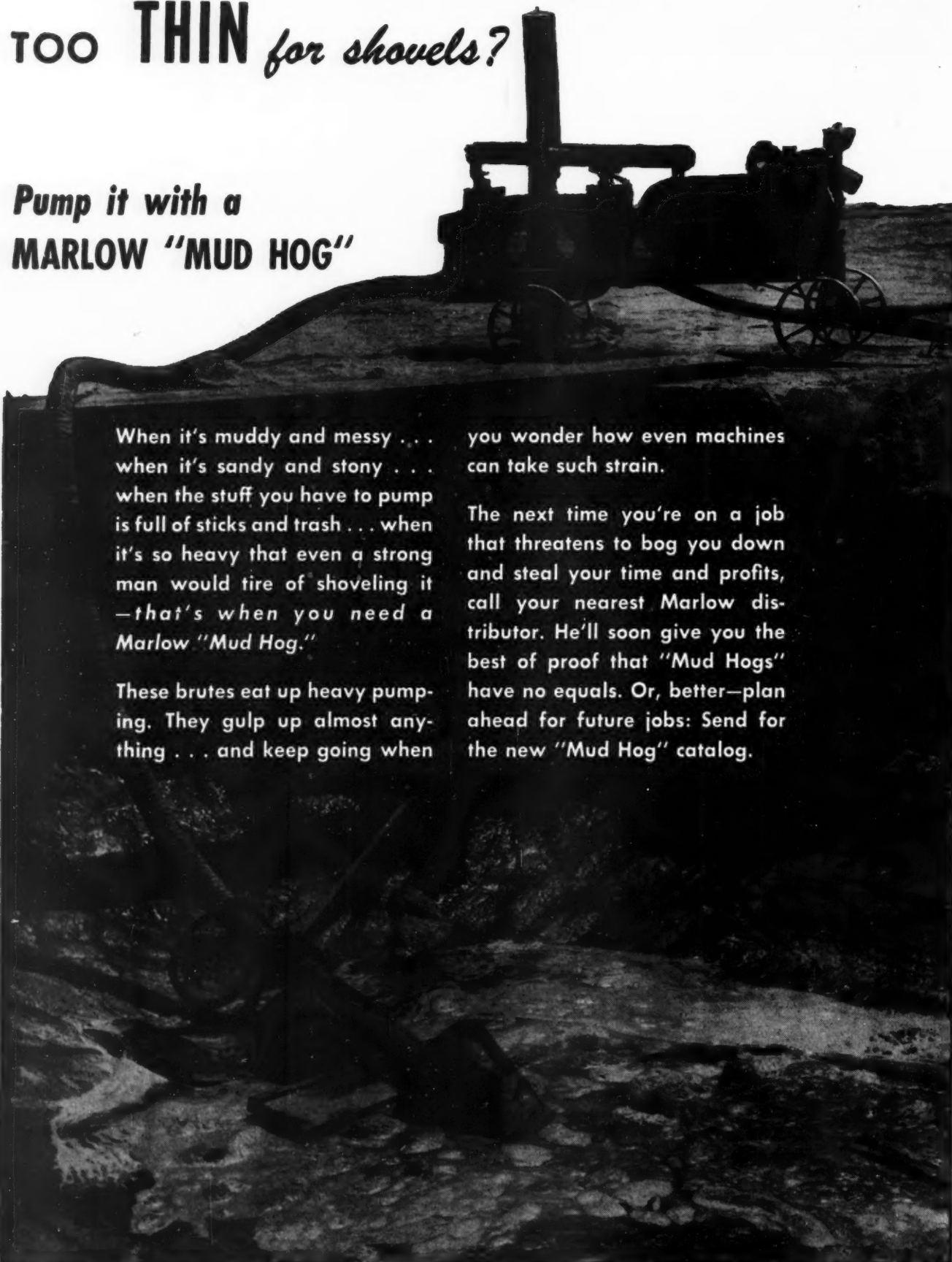
HIGH SPEED EARTHMOWING EQUIPMENT

FOR LOW

FOR LOWEST POSSIBLE COST  
PER YARD...PER JOB...PER YEAR

**TOO THICK** *for centrifugals?*  
**TOO THIN** *for shovels?*

**Pump it with a  
MARLOW "MUD HOG"**



When it's muddy and messy . . .  
when it's sandy and stony . . .  
when the stuff you have to pump  
is full of sticks and trash . . . when  
it's so heavy that even a strong  
man would tire of shoveling it  
—that's when you need a  
Marlow "Mud Hog."

These brutes eat up heavy pump-  
ing. They gulp up almost any-  
thing . . . and keep going when

you wonder how even machines  
can take such strain.

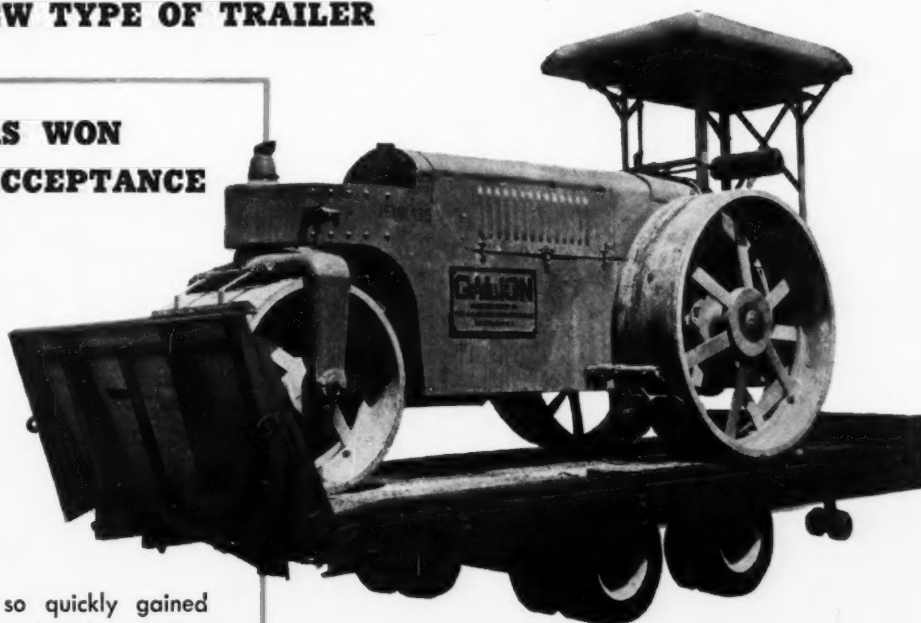
The next time you're on a job  
that threatens to bog you down  
and steal your time and profits,  
call your nearest Marlow dis-  
tributor. He'll soon give you the  
best of proof that "Mud Hogs"  
have no equals. Or, better—plan  
ahead for future jobs: Send for  
the new "Mud Hog" catalog.

**MARLOW PUMPS RIDGEWOOD, NEW JERSEY**

# TIP-TOP

**AN ENTIRELY NEW TYPE OF TRAILER**

**THAT HAS WON  
OVERNIGHT ACCEPTANCE**



Few products have so quickly gained favorable recognition as has the new TIP-TOP Trailer. On the market but a few short months, this revolutionary development in trailer design has already been widely acclaimed as the solution to an important problem in the construction field.

And why not? The TIP-TOP Trailer makes loading and unloading of mobile equipment far faster, safer and easier . . . eliminates all need for blocking, skidding or winching.

In addition, it has a wide variety of other uses that greatly increases its general utility value. Practically any type of commodity, such as lumber, steel, pipe, etc., can be hauled since stake pockets are stakes and racks can be supplied on request.

Sturdily constructed with pressed steel frames, TIP-TOP Trailers are available in 7-ton capacity (single axle) or 12-ton capacity (tandem axle) and provide a liberal factor of safety for unavoidable overloads. Also, where desired, special capacity sizes can be made to specifications.

TIP-TOP Trailers are equipped with approved lights and reflectors, vacuum, air or electric brakes and comply with all state laws.

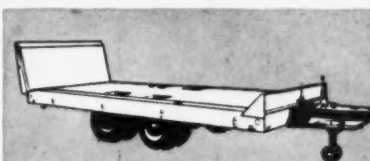
INQUIRIES ARE INVITED  
FROM QUALIFIED DISTRIBUTORS

**ARTHUR REHBERGER & SON, Inc.**  
320 Ferry Street Newark 5, N. J.  
Vehicle Manufacturers For Over 60 Years

**TIP-TOP TRAILERS  
MAKE LOADING and UNLOADING  
AS SIMPLE AS THIS!**

**1.**

Trailer before loading.



**2.**

Tail skid is lowered and loading platform is raised by hydraulically controlled, hand operated pump.



**3.**

Equipment is driven on under its own power with tail skid serving as ramp. Release valve is then opened so that loading platform will return to its original position and automatically lock. The tail skid is then hydraulically raised to shorten overall vehicle length and to serve as barrier for load. In unloading, same procedure is followed and equipment is driven off under its own power.



**TIP-TOP  
TRAILERS**

Patent Pending

For additional information on TIP-TOP Trailers, write for folder



# LION NATURALUBE

D.H.D. OIL FOR DIESEL AND  
HEAVY DUTY MOTORS

## Basically Different 4 WAYS\*

### GUARANTEE

If you don't believe that Naturalube D.H.D. is the best oil you have ever used, Lion Oil Company will give you your money back!

Ask your Lion Distributor for complete information about D.H.D. or write to Lion Oil Company, El Dorado, Arkansas.

"Petroleum Promotes Progress"

1

### REMOVES HARD CARBON

Nature gave Naturalube remarkable carbon-removing ability. This oil takes harmful carbon off rings, pistons, valves and plugs while the engine runs... cuts power-loss and wear.

2

### STRONGER PROTECTIVE FILM

The naturally tougher film of Naturalube stands up under the heat and shock of heavy duty operation... provides increased protection for motor parts.

3

### GREATER PENETRATION AND ADHESION

Naturally greater penetrative qualities assure constant lubrication of close-fitting parts. Naturalube's greater clinging power assures lubrication from the moment the engine starts.

4

### NON-CORROSIVE—SAFE

Naturalube does not contain nor form substances injurious to bearings and other metal surfaces. It's naturally safe!



### \* RESISTS FORMATION OF SLUDGE

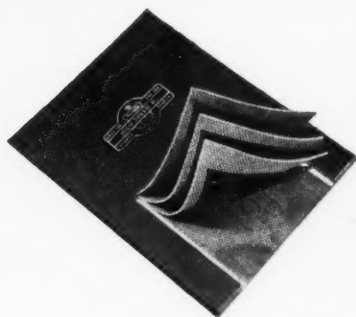
Lion especially reinforces Naturalube D.H.D. to make it resistant to formation of harmful sludge and lacquer... to keep motors cleaner.

**LION OIL COMPANY, EL DORADO, ARKANSAS**

# Transmission Belting

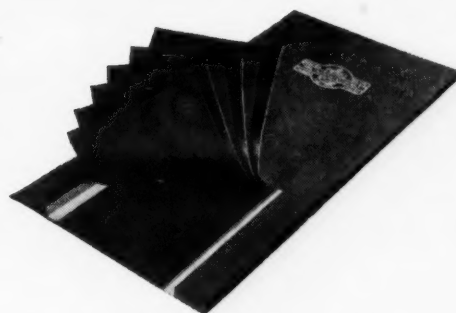
## by Thermoid

The two grades of belting described here, cover the maximum range of industrial applications. Your Thermoid distributor will be glad to recommend the size and number of plies best suited to the particular service you have in mind.



### For severe service, high speeds, small pulleys use Thermoid High Speed R\*

Made of extra strong, hard, 35-ounce duck combined with top grade natural rubber friction and skim. This belt is extremely strong, flexible, and has a minimum amount of stretch. The square edges are protected by a sealing compound. All plies are straight-laid. Since there are no folds or seams, each ply carries its full share of the load. Supplied in cut or continuous length up to approximately 500 ft., or continuous wind endless, in all standard widths and any number of plies.



### For regular service use Thermoid #400

A high-quality, brown-colored belt of finest 32-ounce fabric. This belt withstands severe flexing and shock loads. It is of folded-edge construction with a strong skim stock between the plies. Supplied in continuous lengths up to approximately 500 ft. in all standard widths and any number of plies. Also supplied endless with stitched diamond splice.

It's good business to do business with

**Thermoid**

You will like the personalized attention you get from Thermoid distributors, and you will appreciate the speed with which a specific problem can be handled by our distributors in conjunction with our sales engineers. Thermoid concentrates on a well-integrated line of industrial rubber products and friction materials, and is unusually well equipped to service your requirement.

*The Thermoid Line Includes:*  
Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Custom Molded Products • Industrial Brake Linings and Friction Materials.

**Thermoid**

**Thermoid Company • Trenton, N. J., U. S. A.**  
Automotive • Industrial • Oil Field • Textile Products

# Another "FIRST" for "QUICK-WAY" TRUCK SHOVELS

with the NEW  
**ALL PURPOSE  
SCOOP!**

FULL REVOLVING  
CABLE CROWD

MODEL E  $\frac{5}{8}$  and MODEL J  $\frac{3}{8}$

CU. YD. CAPACITY  
Interchangeable  
with other

**"QUICK-WAY"**  
ATTACHMENTS



The Full-Revolving, Cable-Crowding Scoop is a valuable addition to other "QUICK-WAY" equipment. This full 360° revolving light weight scoop operates as a standard attachment from all angles and in tight places. Standard buckets increase the material handling capacity of your Model E or J "QUICK-WAY" up to 50%; larger buckets available for light materials.

The Scoop has the same rugged simplicity and balanced design found in all "QUICK-WAY" equipment. "QUICK-WAYS" are truck mounted to travel at truck speed and work economically anywhere. Convert in

minutes from Scoop to Shovel, Dragline, Trench-hoe, Crane, Clamshell, Pile Driver or Backfiller. No matter what other equipment you own, you need "QUICK-WAYS" too. There's a "QUICK-WAY" owner near you, ask HIM.

MODEL E: 4/10 cu. yd. cap., mounts on any standard 5-ton truck  
MODEL J: 1/4 cu. yd. cap., mounts on any standard 1½-ton truck

Service available from our Distributors,  
strategically located throughout U. S. and worldwide.

\*Reg. U. S. Patent Office



For speed, portability, economy of operation, and adaptability to a wider range of jobs, nothing of comparable size equals a "Quick-Way" Truck Shovel.

## "QUICK-WAY" TRUCK SHOVEL CO.

DENVER, COLORADO

PIONEER IN POWER SHOVELS FOR TRUCK MOUNTING; STILL THE LEADER AFTER 29 YEARS



**PROVED**

**BY MANY YEARS OF  
HEAVY DUTY ROLLING**



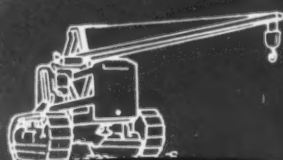
**5 SIZES**

- 12, 10, 8, 6 and 5 Tons
- VARIABLE WEIGHT IN ALL MODELS
- FIVE SPEEDS - FORWARD & REVERSE
- GASOLINE OR DIESEL ENGINES
- MANUAL OR HYDRAULIC STEERING
- MOVING PARTS FULLY ENCLOSED

**INGRAM  
ROLLERS**

**ACME IRON WORKS · SAN ANTONIO · TEXAS**

# Announcing INCREASED POWER



## INTERNATIONAL DIESEL CRAWLERS

Increased-horsepower engines now give these heavy-duty Diesel crawlers new power and performance values. Smoother, cooler operation and greater lugging ability step up their work capacity to a new high!

New illustrated folders, in color, describing these tractors are now available. Write to International Harvester for *Form No. A-92-LL* describing the TD-14 or if you want the facts on the International TD-18 ask for *Form No. A-93-LL*.

The 4-cylinder TD-14 now provides 57 drawbar horsepower at 1400 r.p.m.

The 6-cylinder TD-18 delivers 80½ drawbar horsepower at 1300 r.p.m.

Now is the time to see your International Industrial Power Distributor for your tractor, power unit and equipment needs. More and more, each year, you will find it *good business* to *standardize on International*.

Industrial Power Division

**INTERNATIONAL HARVESTER COMPANY**

180 North Michigan Avenue

•

Chicago 1, Illinois

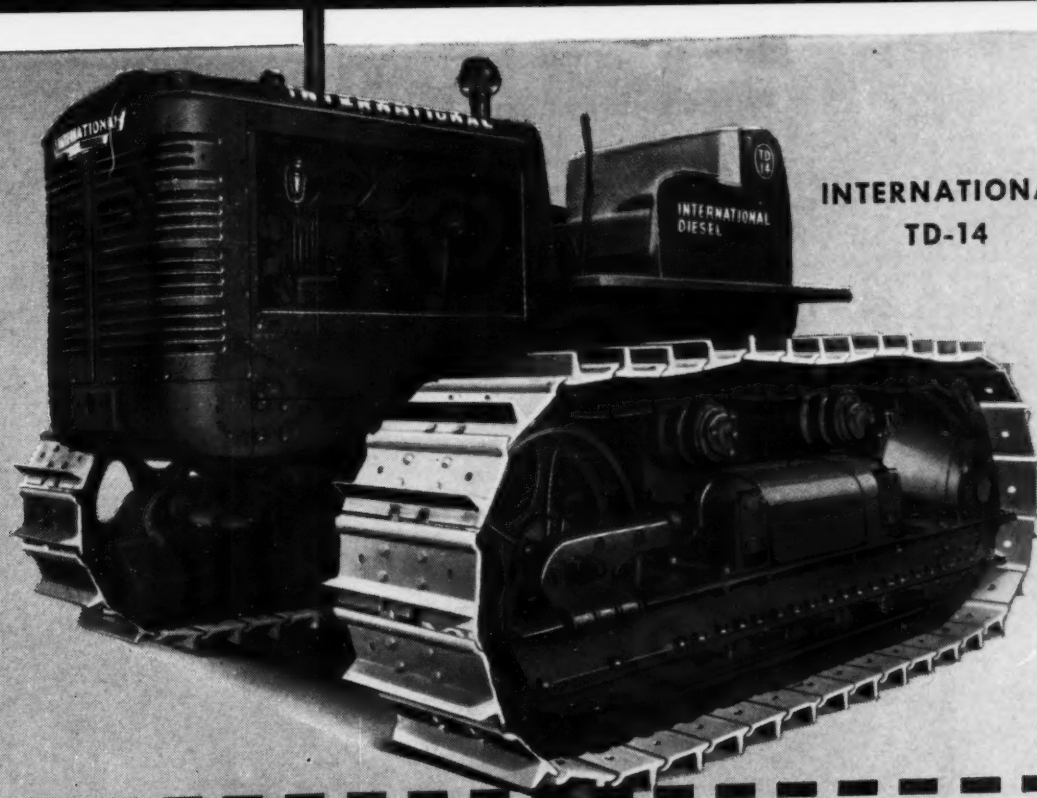
CRAWLER TRACTORS  
POWER UNITS  
DIESEL ENGINES  
WHEEL TRACTORS

# INTERNATIONAL

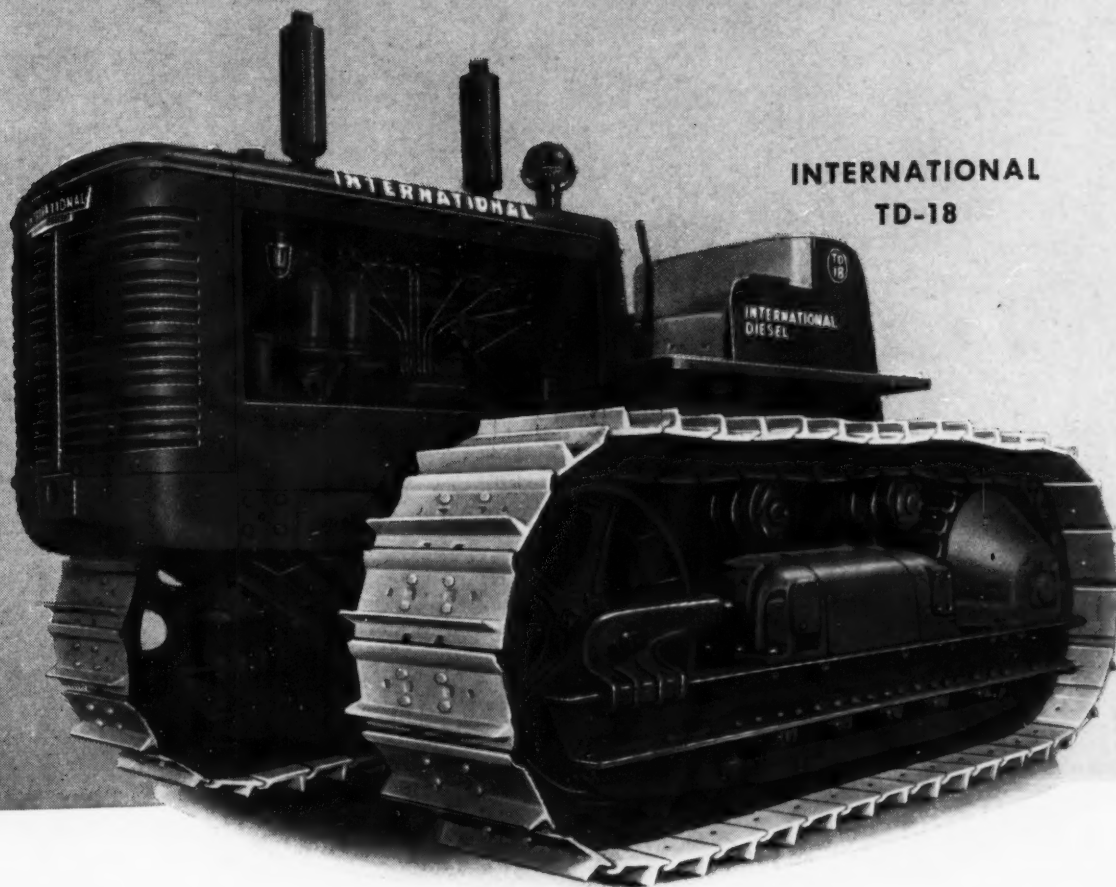


INTERNAT  
HARVES





INTERNATIONAL  
TD-14



INTERNATIONAL  
TD-18

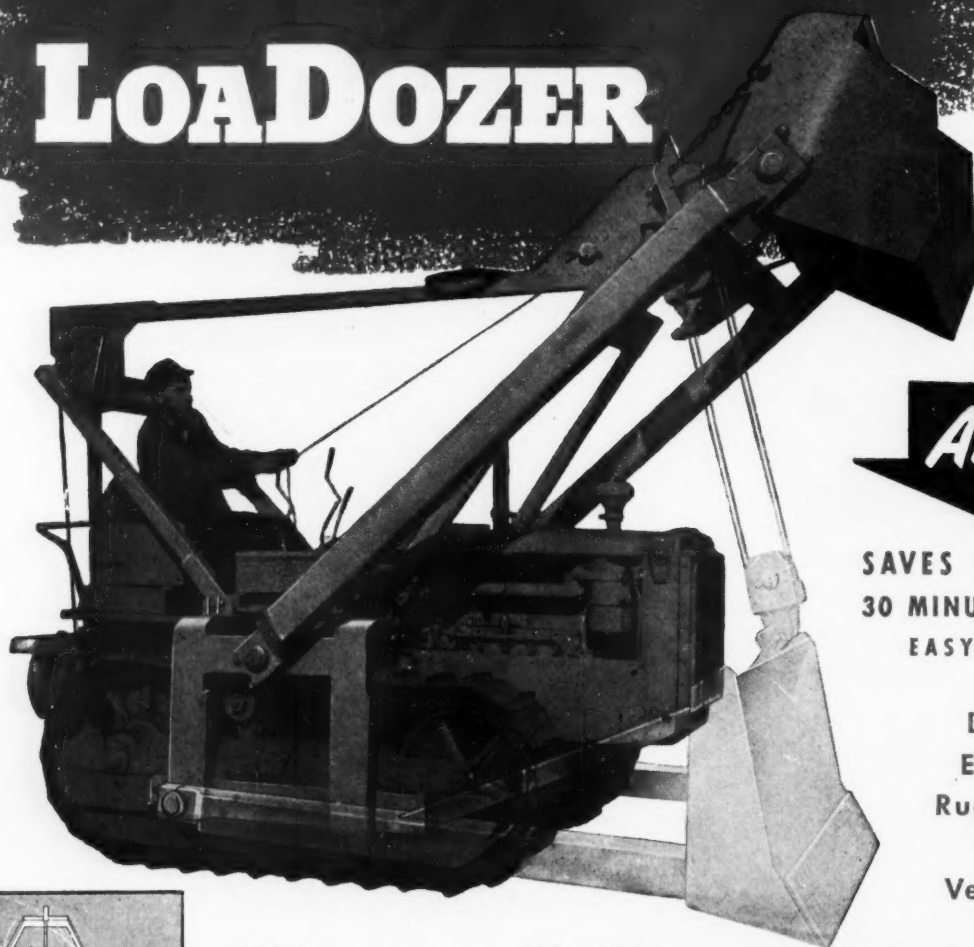


***Industrial Power***





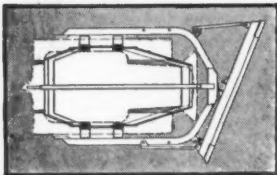
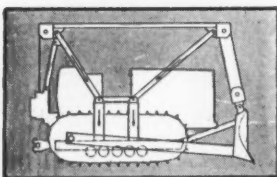
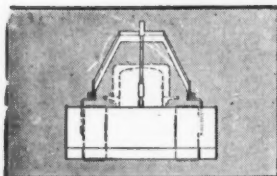
# NOW-THE SOUTHWEST LOADOZER



*All this*

SAVES ONE TRACTOR  
30 MINUTE CHANGE-OVER  
EASY OPERATION

Balance  
Economy  
Ruggedness  
Speed  
Versatility



"Over Center Track Mounted"  
design gives perfect balance

All these features are "built-in" qualities of the new SOUTHWEST "LOADOZER"—Extra

values that mean greater efficiency and economy in Loader and Bulldozer operations. Remember—you SAVE ONE TRACTOR—it takes only 30 MINUTES TO CHANGE OVER this combination Loader-Bulldozer unit.

- Built for all four makes of track type tractors.
- See your equipment dealer about the complete line of SOUTHWEST CONSTRUCTION EQUIPMENT.
- For complete specifications on this Loader-Bulldozer combination unit—WRITE FOR BULLETIN CM-11.

ANOTHER EXAMPLE  
OF *Southwest's* LEADERSHIP

CONSTRUCTION MACHINERY DIVISION

## Southwest Welding & Manufacturing Co.

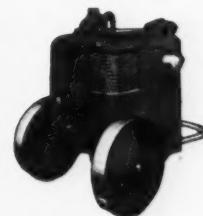
ALHAMBRA, CALIFORNIA



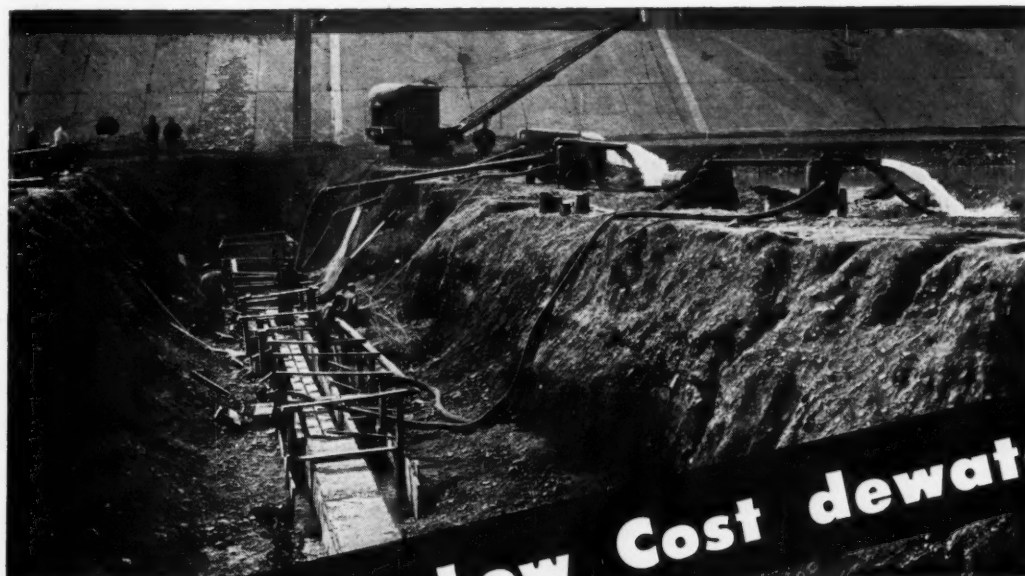
- This contractor was able to lay telephone conduit in a river bed behind a row of easily portable Jaeger pumps and simple drainage lines . . .
- This low-cost system was practical because his Jaeger pumps primed quickly and unfailingly as soon as water sealed the intake and had the big capacity needed to keep the trench pumped out.



1½" Bantam, world's champion lightweight



2" and 3" portables



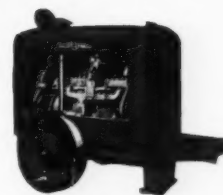
**here's Low Cost dewatering:**



Compact 4" and 6" pumps



8" and 10" portables, up to 240,000 gph



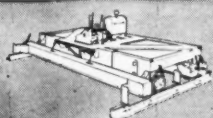
Self-priming jetting pumps

When water is your problem, call your Jaeger distributor. He keeps a big stock of pumps and fittings ready for sale or rent. And his pumps are Jaeger "Sure Primes" —

built and powered beyond their guaranteed performance, doubly sure and fast to prime and enclosed from weather to keep them dry, quick-starting, efficient and long-lived.

**THE JAEGER MACHINE COMPANY, Columbus 16, Ohio**

REGIONAL 1504 Widener Bldg. 226 N. La Salle St. 235 American Life Bldg.  
OFFICES: PHILADELPHIA 7 CHICAGO 1 BIRMINGHAM 1



Spreaders, Finishers



Concrete Mixers



Compressors

**JAEGER**  
*Engineered* EQUIPMENT

Truck Mixers • Hoists • Concrete and Bituminous Paving Equipment

# Why wait?

Rent an  
AMERICAN PORTABLE MATERIAL ELEVATOR

... Move it to the job site on one truck



Assemble it in 2 to 3 hours ...

Let the hoist raise the 40 foot lift tower

... and Get Going!



● Let's cut the delays. The AMERICAN PORTABLE MATERIAL ELEVATOR can be taken down from one job, put on a truck, reassembled, set up and be operating in less than half a day.

It has *more* platform area (36 square feet); *more* net lifting capacity (2500 lbs.); *more* height (47 foot tower extendable to 67 feet); and a concrete bucket used interchangeably with the platform. A self-contained, self-erecting tower that stands on its own feet.

And you don't even have to buy it. Rental service is now widely available through AMERICAN HOIST construction equipment distributors. But just try it on one job, and you'll probably want to "own your own".

## American Hoist

and DERRICK COMPANY

St. Paul 1, Minnesota

Plant No. 2: SO. KEARNY, N. J.

Sales Offices: NEW YORK • PITTSBURGH • CHICAGO  
NEW ORLEANS • SAN FRANCISCO

HOISTS • DERRICKS • HANDIWINCH • BLOCKS AND SHEAVES • CROSBY CLIPS



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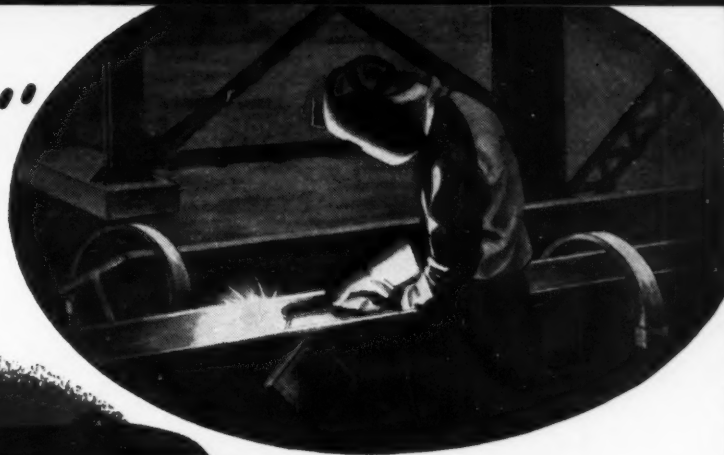
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*They asked for it...*  
**HERE IT IS!**



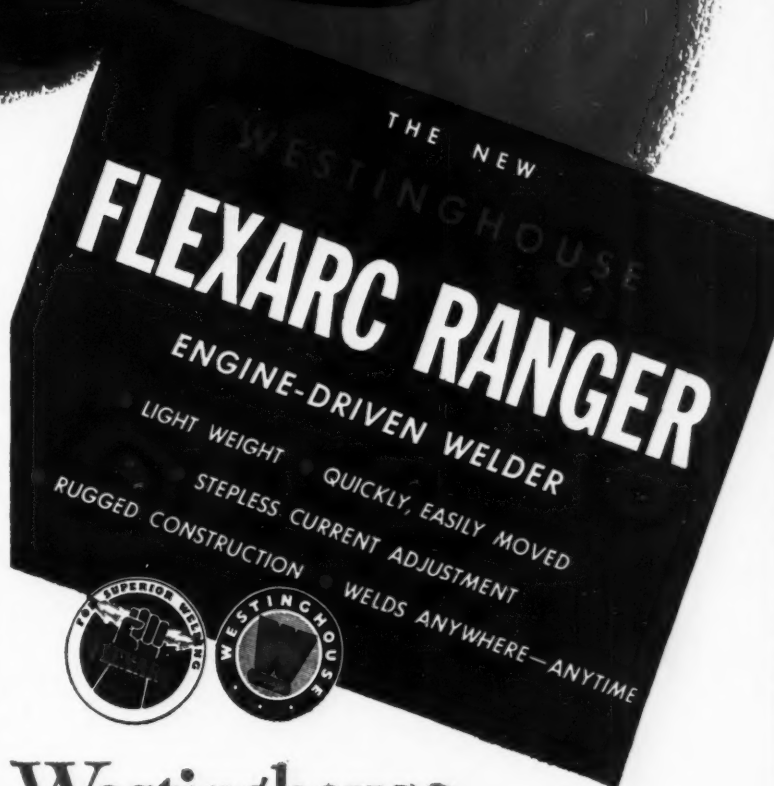
The men who supervise construction in hard-to-get-at spots asked for it . . . and wrote the specifications for it. Westinghouse produced it—a rugged, lightweight welder for rugged terrain. One that can go to work anywhere, any time . . . where electric power is not easily available.

The new Westinghouse engine-driven welder on wheels is smaller, lighter, but with big-welder stamina. Powered by a four-cylinder, 1800 rpm, Hercules industrial engine, the Ranger is designed and built to NEMA standards . . . has a rating of 200 amps, 30 volts, 50% duty cycle, with a welding current range of 20 to 250 amperes. This wide range of welding current adjustment is divided over four overlapping ranges, in each of which stepless current adjustment is obtained by rheostatic control.

Easily transportable on 2-wheel, spring-mounted pneumatic-tired, standard road gauge running gear for road towing *at high speed*. Also available without running gear for stationary mounting.

Here's the welder you've been asking for—built for hard, continuous use on any kind of job. Welder comes complete, with all essential accessories, for immediate welding service. For full details, write Westinghouse Electric Corporation, P. O. Box 2025, Buffalo 5, N. Y.

J-21417-3



**Westinghouse**  
 PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

**WELDERS AND ELECTRODES**

# MORE PROFITS <sup>per</sup> year

## HEAVY-DUTY excavators

**Y**OU get steady performance, cut maintenance delays and expense, save plant schedule readjustments, insure customer satisfaction, by using Koehring HEAVY-DUTY excavators. They are tough, long lived, built simple and handy to encourage good operator care and preventative maintenance. See your Koehring Distributor before you buy.

The Koehring 605, 1 1/2 yard as shovel, is big and strong, ideal for rock excavation, with its heavy-duty shock absorber mounted shovel-boom. Mounted on Koehring self-cleaning crawlers, available in various sizes. Koehring 605 Cranes are equipped with a high A-frame which can be lowered or raised by power. The 605 is easily converted from shovel to crane, or dragline.

The Koehring 304, 3/4 yard as shovel, with high operating speed and Koehring construction, gives you durability and increased production. You can get the Koehring 304 either crawler-mounted, or rubber-mounted as Cruiser Crane or truck crane for greater mobility. Front ends on crawler and truck models can be quickly and easily changed for shovel, pull shovel, dragline, or crane operations.

The Koehring 205, 1/2 yard as a shovel, features independent traction for greater speed and mobility and a 2 in 1 shovel boom for both shovel and pull shovel work. Heavy-duty construction, ease of operation, speed and maneuverability of the 205 gives you a money-making excavator. The 205 is available mounted on rubber or crawlers and is easily converted to shovel, pull-shovel, crane or dragline.

**Write for FREE catalog**



**KOEHRING COMPANY** Milwaukee 10, Wisconsin

*Subsidiaries* JOHNSON • KWIK-MIX • PARSONS



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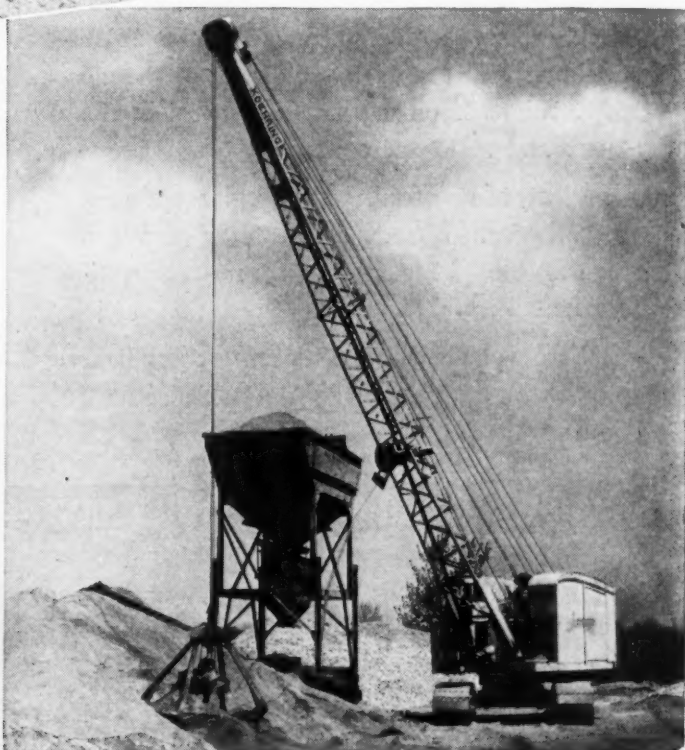
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# MORE HOURS <sup>per shift</sup>

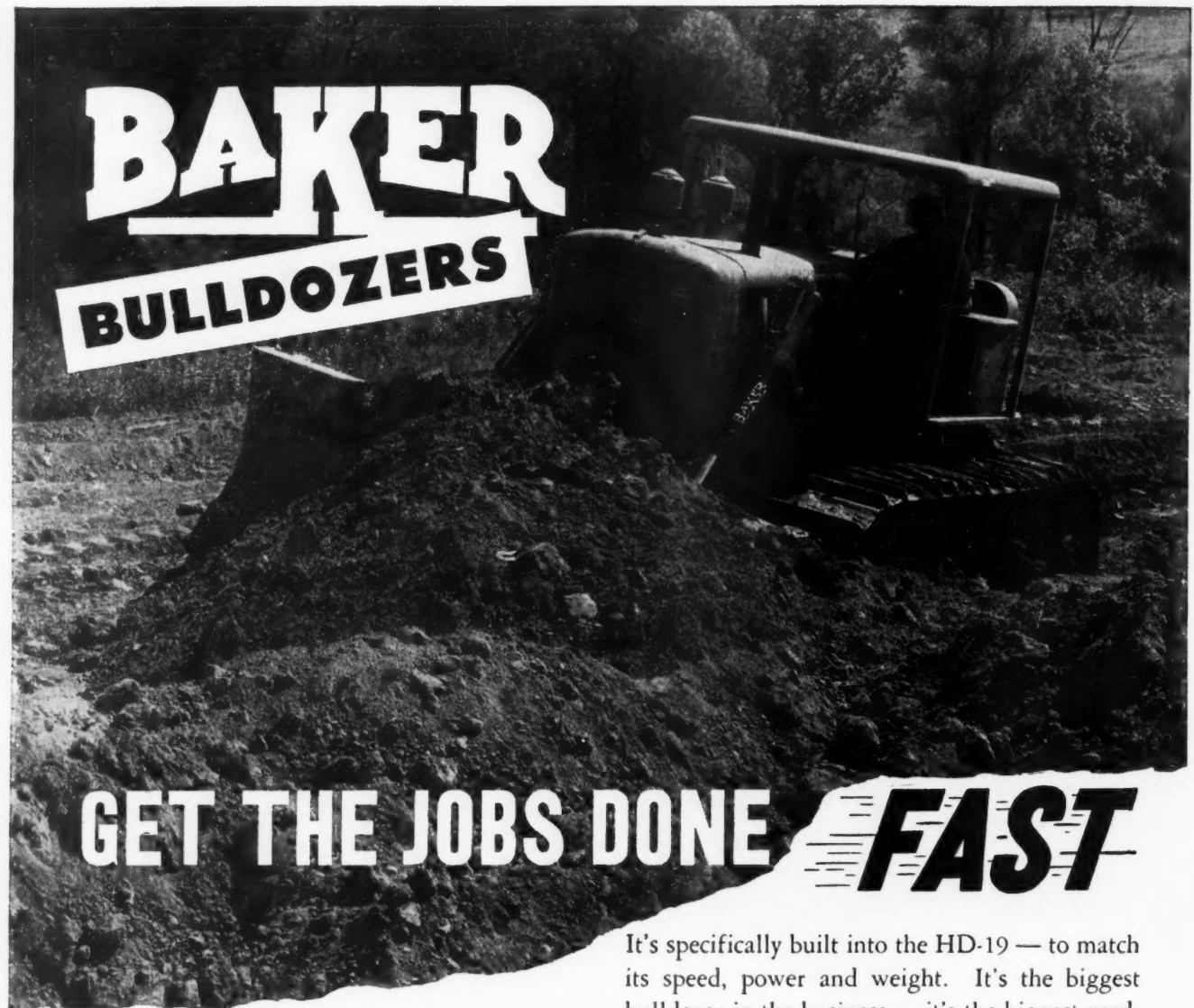
with **KOEHRING**



RING  
DUTY



# BAKER BULLDOZERS



## GET THE JOBS DONE **FAST**

Why "send a boy to do a man-sized job?" Tackle your big, tough jobs with the huge Allis-Chalmers HD-19 and Baker 'dozer — the most powerful team on earth. Get your jobs done faster and at lowest cost.

Plenty of heft for heavy duty, plenty of weight for all weather traction, plenty of power for tough going, plenty of speed for faster operating cycles—all add up to plenty of profit on any job.

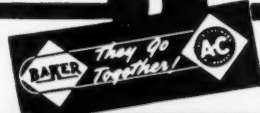
Before you buy any bulldozer — check Baker.

It's specifically built into the HD-19 — to match its speed, power and weight. It's the biggest bulldozer in the business — it's the biggest yard-age producer in the history of earth-moving.

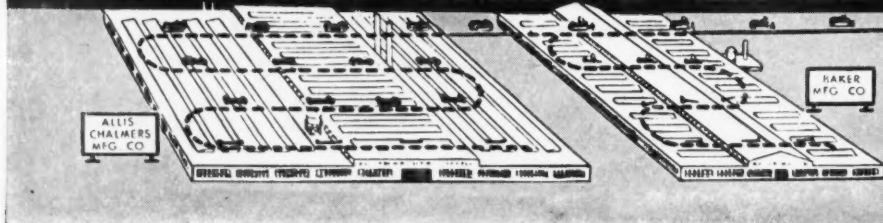
Baker Bulldozers and Gradebuilders are available for the HD-19 with either hydraulic or cable control. See your Allis-Chalmers dealer today.

**BAKER MFG. CO., Springfield, Ill.**

# BAKER



**"STRAIGHT THROUGH" ASSEMBLY LINE - ALLIS-CHALMERS TO BAKER TO YOU!**



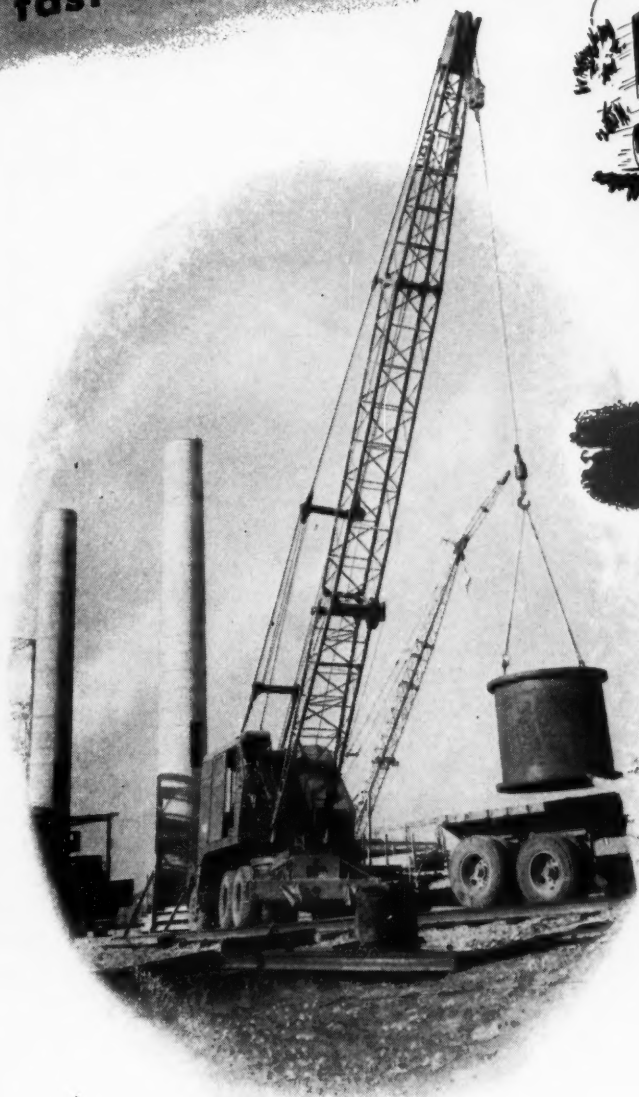
The modern Baker plant with its completely equipped fabricating, machining and blacksmithing shops, adjoins the Allis-Chalmers crawler tractor plant.

When you order an A-C tractor with Baker bulldozer or gradebuilder, your tractor leaves the A-C assembly line, crosses a narrow court and goes on the Baker final assembly line.

fast on the highway . . .



**FASTER** on the job!



Want to "shrink" miles between jobs? . . . Cut time on the job? . . . Handle more jobs? . . . Here's the machine that will do it!

P&H Truck Cranes are dual powered — with one engine *built* for travel and the other built for *work*. Therefore you get better performance both ways — faster moves from job to job at regular highway traffic speeds. Quicker completion of the jobs.

And where the job demands, you can change over to shovel, dragline, clamshell, hoe or pile-driver. P&H Truck Cranes are profit makers everywhere. Send for literature now.

#### TRUCK CRANES

4494 West National Avenue  
Milwaukee 14, Wis.

### P&H Added Values

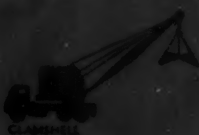
- Hydraulic control — a new peak in operating ease and safety
- Greater stability — with exclusive torsion bar-mounted front axle and lower center of gravity
- Independent planetary boom hoist — raises or lowers crane boom smoothly and safely, with or without load
- Planetary load lowering — permits "inching" of loads accurately
- All-welded construction — greater strength

*Size for size no P&H Truck Crane has ever been outlifted*



#### P&H REMOTE CONTROL AVAILABLE

With this unit you can control all carrier functions (even the horn!) by electric push-buttons — from the operator's position inside the crane cab.



# MOREW





# WORK-POWER

With owners and operators, it's Performance that Counts! The capacity of a Motor Grader is measured by the work it accomplishes.

Here's why the Allis-Chalmers A-D Motor Grader more than meets their requirements:

**TRAVEL SPEEDS** smoothly synchronized with **OPERATOR CONTROLS** . . . All the needed power applied as required.

**BIG WORKING CLEARANCE.** More than 30" throat clearance for handling bigger windrows without interference.

**"ROLL-AWAY" MOLDBOARD.** Requires less power to handle bigger loads at faster speeds. Material is *rolled*, not pushed.

**21,500 LBS. EFFECTIVE WEIGHT.** Balanced for maximum traction and control.

**FULL CIRCLE REVOLVING BLADE.** Swings *aboard* of platform with plenty of end clearance.

**EXCLUSIVE TUBULAR FRAME.** Strong, shock-absorbing, protects control rods inside frame.

**ELECTRIC BRAKES.** Control positive, operate with less effort than auto brakes.

**FAMOUS GENERAL MOTORS 2-CYCLE DIESEL POWER.** Dependable, economical, instant-starting.

## 2 SIZES

**MODEL A-D3 . . . . 76 BRAKE H.P.**

**MODEL A-D4 . . . . 104 BRAKE H.P.**



**ALLIS-CHALMERS**  
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

**FREEDOM**  
IS EVERYBODY'S JOB!



# YES



## CONSTRUCTION MEN DEPEND ON INTERNATIONALS

Construction work is tough on trucks. And that's where Internationals shine.

The basic quality of Internationals—component for component—is unexcelled.

Internationals are expertly *specialized*—with engines, transmissions and axles coordinated to one another and to the work each does.

International specialization is so thorough that the complete International Line *specializes* into more than 1,000 types of trucks.

That means the *right* truck for every job.

And Internationals are load-coordinated, too. Analysis of your operation by the International Truck Point Rating System shows exactly what loads should be carried by *your* trucks on *your* operation to bring *you* the biggest return.

So no matter what your hauls, consult your International Dealer or Branch, for the sizes and types of Internationals to do your work best.

Motor Truck Division

INTERNATIONAL HARVESTER COMPANY • Chicago



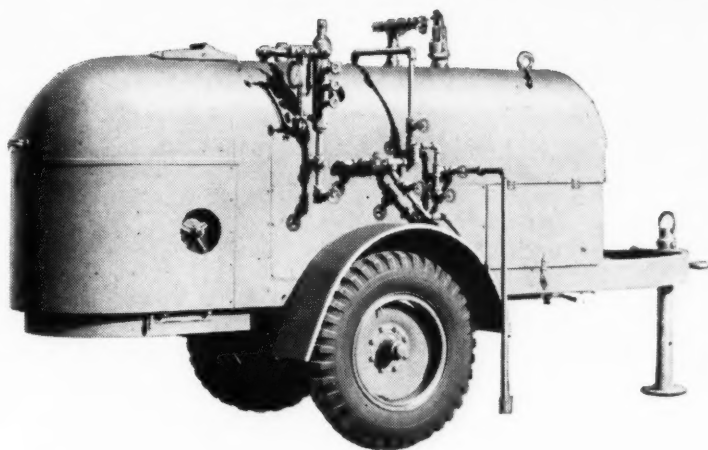
Tune in James Melton on "Harvest of Stars." CBS Wednesday Night.



# INTERNATIONAL Trucks



**Cleaver-Brooks Tank-Car Heaters have  
Dry Steam in Tank Car Coils from a Cold  
Start in 20 Minutes OR LESS!**



Cleaver-Brooks Mobile Tank-Car Heater—Not just a boiler on wheels, but a compact, rugged, highly efficient steam generator—built for a specific purpose. Available in two and three tank car heating capacities. Oil-fired, extra-high heat transfer design, dry-coil steam condensate return under pressure—no water or heat losses. Can also be profitably used for an all purpose unit for steam cleaning, thawing and heating.

THE tank car on the siding is the starting point for fast work on any oiling or bituminous surfacing job. The quicker you get the oil or asphalt up to application temperatures and flowing into the relay trucks or distributors—the faster your work crews can get going.

Cleaver-Brooks tank-car heaters are expressly designed to be shooting steam through tank car coils at 125 lbs. pressure in 20 minutes or less. And they can keep going full tilt all day with a very minimum of attention and work because a Cleaver-Brooks tank-car heater uses less fuel and water. Its extra high heat transfer design means fuel savings; its turbine type condensate return means less water . . . every drop of condensate goes back to the heater and under pressure. The capacity for long hours and tough jobs is built into every Cleaver-Brooks Unit. For detailed information write for bulletin RM-102.

**CLEAVER-BROOKS COMPANY**  
5129 NORTH 33rd STREET • MILWAUKEE 9, WISCONSIN

**Cleaver-Brooks** PIONEERS AND  
ORIGINATORS OF

**TANK CAR HEATERS...BITUMINOUS BOOSTERS...AUTOMATIC STEAM PLANTS**



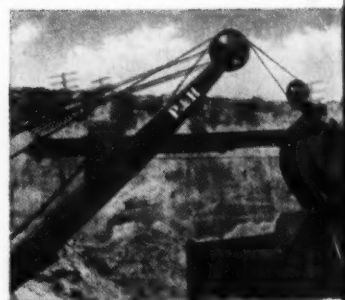


# How P&H PLANETARIES Pep Up Production

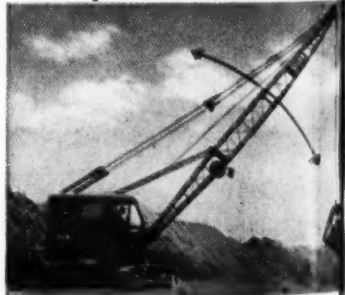
This is the planetary transmission used so effectively on P & H Excavators. Through the use of this simple, proved principle, P & H provides operating characteristics which are unmatched for speed, smoothness and accuracy of control.

Where frequent reversals are required, such as for shovels or for the main drum in crane service, the planetary provides remarkable flexibility, yet delivers full power as positively as a gear.

P & H originated and patented the application of the planetary transmission on excavators and has always led in its development. Its various uses, explained here and on the following page, constitute another important P & H Added Value.



PLANETARY CHAIN CROWD provides full power for crowd and rapid reversal, with dipper return twice that of crowding speed. It's smooth, positive and accurate enough to dig within an inch of grade.



PLANETARY BOOM HOIST is independent—triple safe. Safety lowering against engine compression makes it impossible for the boom to drop suddenly.

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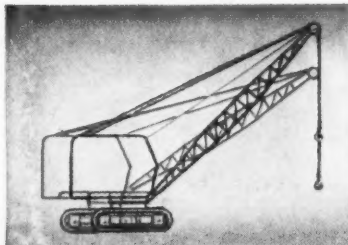
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and in crane service...

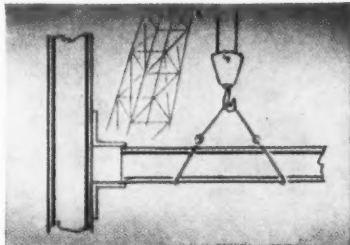
## PLANETARY CONTROL

means safer, faster, more  
accurate load handling

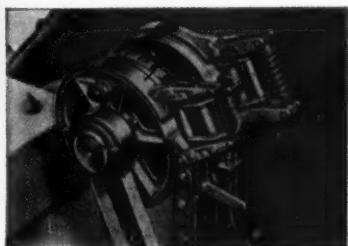
Here's an operating feature you'll find on no other crane—planetary raising of both boom and load, together or independently. It is quick, easy and safe. And with load lowering against engine power, there's greater accuracy for "inching" heavy loads where utmost precision is required.



HERE'S A BIG ADVANTAGE in work such as steel erection. Operator can raise boom and load as machine moves forward, without forward motion of the boom point.



BOOM AND LOAD can be lowered smoothly, steadily, without jerking. This permits more precise handling of heavy members such as in fitting up structural steels.



COMPLETE SAFETY. Holding brakes are supplemented by ratchet mechanism which automatically prevents lowering boom faster than engine speed. Like coasting your car downhill in low gear.



EASY OPERATION is provided through simple, positive hydraulic control; more responsive. The operator reacts naturally with direct "feel" of the load at all times.

# P&H

### EXCAVATORS

4494 W. National Ave.  
Milwaukee 14, Wisconsin

## HARNISCHFEGER

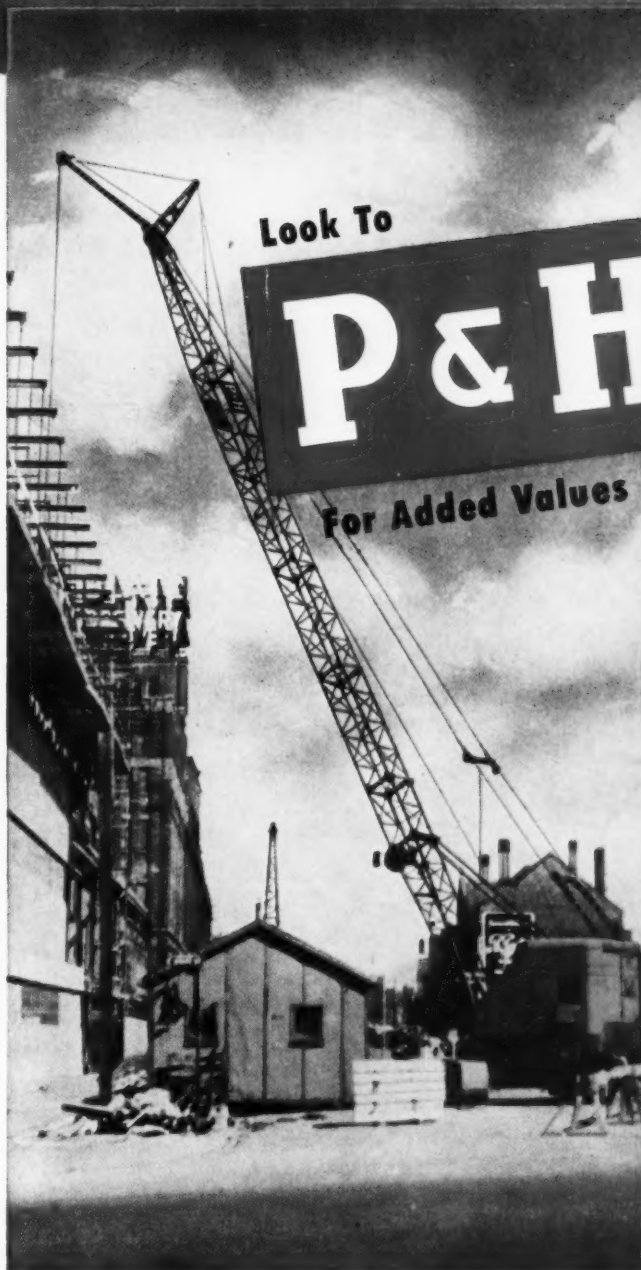
CORPORATION

EXCAVATORS • ELECTRIC CRANES • ARC WELDERS • HOISTS • WELDING ELECTRODES • MOTORS

Look To

# P&H

For Added Values



The P&H planetary transmission is the simplest, most compact mechanism for these Crane functions. There are no exposed gears, no stub shafts, no extra clutches.

P&H design and construction offer many other important added values to the excavator buyer. Ask your nearest P&H dealer about them or write us for complete information.

P&H Excavators are built in sizes up to 6 cubic yards, gasoline, Diesel or electric powered. Write for literature on the size that interests you.



# DIESEL POWER *at Its Best*

On every count a GMC Diesel truck is your best Diesel buy. Take the engine, for example. It's of famous GM 2-cycle design . . . basically the same as the GM Diesels which power the locomotives of the nation's leading railroads. It is an efficient, dependable, *proved* Diesel that gives you lighter engine weight for greater pay load, outstanding smoothness, flexibility and lugging ability. And with this great engine, in a GMC Diesel, you get a specialized Diesel chassis that's exclusively designed and engineered for heavy duty Diesel work. GMC Diesels are available in eight basic models . . . two engine sizes . . . in gross weight ratings of 30,000 to 90,000 pounds. Many are now ready for quick delivery. Get GMC Diesels for your construction operations . . . and get Diesel power at its best.



GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION



# WATER-LEVEL LOWERED **39** FEET



## *on bridge pier foundation*

Chain of Rocks Bridge Approach, St. Louis.  
Contractor: Bushman Construction Co.,  
St. Joseph, Missouri.

A big job with plenty of water—in coarse sand, gravel and mud—the foundation for the Chain of Rocks Bridge Approach might well have been an endless chain of headaches. But Moretrench engineers carefully planned the pumping operations, a skilled demonstrator installed the wellpoint equipment, supervised its work. Results: *dry, easy digging... steel-sheeted cofferdam eliminated... time and money saved.*

Take advantage of Moretrench experience on your next wet job. It will pay you plenty!

## MORETRENCH CORPORATION

90 West St.  
New York 6





3037 S. Christiana Ave.  
Chicago 23, Illinois




7701 Interbay Blvd.  
Tampa 6, Florida




315 W. 25th St.  
Houston 8, Texas

Rockaway  
New Jersey

# "pig in a poke, or..."

Many of you will remember way back when the buying of concrete mixing and placing equipment was a "pig in a poke" proposition.  No two units were similar in size or capacity.  It was a virtually impossible task for the owner to accurately estimate the capacity of his machines or to bid accurately on jobs.  And not only did this confusion hamper the user, but the manufacturers were also badly handicapped in their manufacturing and sales policies and particularly in their relations with customers. 

The founding of the Truck Mixer Manufacturers Bureau was a direct result of this early confusion.  The manufacturers of this equipment realized early that it would be of maximum benefit to user and maker if a set of standards were adopted that would guarantee the size and capacity of the mixer.  It would protect the user against "outlaw sizes" ... protect the maker against buyer resentment. 

Today, a truck mixer must conform to these standards and as evidence of successful conformance, a Bureau rating plate is prominently displayed on the truck mixer.  Look for it!  It is your guarantee of accuracy! 



## Truck Mixer Manufacturers Bureau

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION  
Pittsburgh, Pa.

CHAIN BELT COMPANY  
Milwaukee, Wis.

CONCRETE TRANSPORT MIXER CO.  
St. Louis, Mo.

THE JAEGER MACHINE COMPANY  
Columbus, Ohio

RANSOME MACHINERY COMPANY  
Dunellen, N. J.

THE T. L. SMITH COMPANY  
Milwaukee, Wis.



Pouring concrete over Bethlehem Reinforcing Bars, shown in place atop one of six culverts built for new road.

## Relocation Job in Northern New York



Pushing the mud around. Earth-moving equipment at work on grading for the new highway.



With strike-off completed, husky Bethlehem Bar Mat is moved into place. Job called for 62,000 sq yd of mats.



Close-up of screed as it spreads final course over Bethlehem Bar Mat.



Joseph Powers, junior engineer (left), and Austin Sarr, resident engineer, both of N. Y. State Highway Dept., glance approvingly at one of numerous construction details encountered on the job.

New York's Route 56, well-known highway from the Adirondacks northward to Massena and the Canadian border, recently underwent relocation near the junction with Route 72, south of Potsdam. These pictures show phases of the construction along a 4 $\frac{3}{4}$ -mile stretch of the new road built by Warren Brothers Roads Co., Syracuse, N. Y. Reinforcing bars and bar mats were furnished by Bethlehem.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation  
Export Distributor: Bethlehem Steel Export Corporation

### Leading Bethlehem Highway Products

Road Joints • Reinforcing Bars • Bar Mats  
Guard Rail • Guard Rail Posts  
Wire Rope and Strand • Hollow Drill Steel  
Spikes • Bolts and Nuts  
Timber Bridge Hardware • Tie-Rods



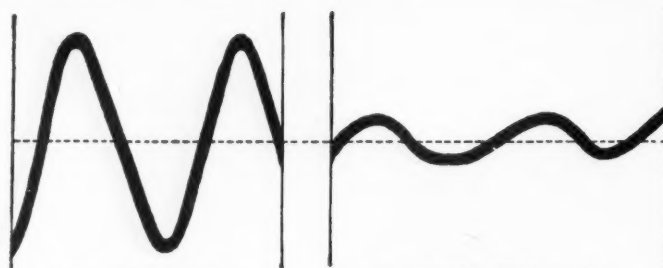
## STEEL for HIGHWAYS



Through Better Use of Energy

# ROCKMASTER

Stopped Objectionable Vibration on This Job



ORDINARY WAY

ROCKMASTER WAY

*An 11 hole blast using 3300 lbs. of dynamite fired by ordinary methods produced this reading on a seismograph used to record the vibration.*

*This ROCKMASTER blast used 12 holes and 3575 lbs. of dynamite, yet the seismograph reading showed only one-third the amount of vibration.*

The vibration record of two comparable blasts, one fired by the Rockmaster blasting system and one by ordinary methods, is shown above. It is easy to see how important this reduction in vibration is to quarries, construction jobs and coal stripping pits that operate near residential communities.

and **ROCKMASTER** cuts costs, too!

The Rockmaster system splits up a big blast into smaller ones, staggered milliseconds apart. That's how it controls vibration. And that's why it also achieves these other important money-saving results!

1. *More rock ready for the shovel.*
2. *Better fragmentation*—less secondary blasting.
3. *Far less "back-break"* in quarries. Less pulverizing of coal in strip pits.
4. *Wider spacing of drill holes* can frequently be used, saving drilling costs and explosives costs.
5. *Better control of "throw."*

*Call in the Atlas representative today. He will be glad to give you the benefit of Atlas pioneering in milli-second delay blasting.*

ROCKMASTER GIVES  
YOU THE GREATER  
SAFETY OF MANASITE  
DETONATORS



*Less Bark . . .  
More Bite*



"ROCKMASTER"—Trade Mark  
Manasite: Reg. U. S. Pat. Off.

# ATLAS

EXPLOSIVES

"Everything for Blasting"



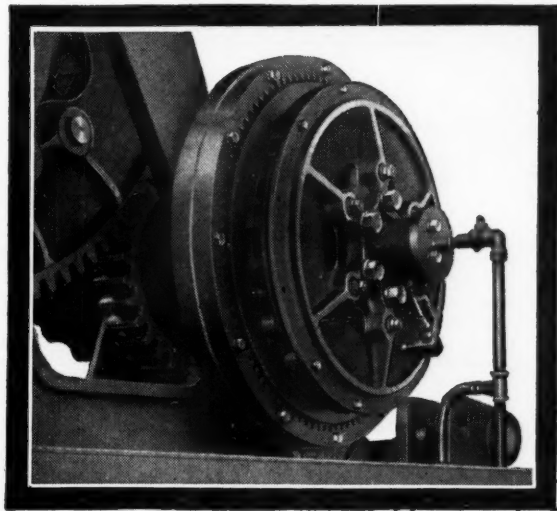
ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco

# Shovel Operators Are Talking About...

➡ A revolutionary new power shovel clutch that provides smooth, positive action in place of jerky, uncontrolled performance . . . a clutch that seldom requires adjustment . . . a clutch with only one working part, and without a single cam, lever, bolt, piston or valve.

➡ It's a power shovel clutch with direct air power that assures positive control, without any "grabbing" effect . . . a clutch that needs no mechanical attention . . . a clutch whose simple operation automatically compensates for any wear on the clutch linings.

## THE OSGOOD AIR-CUSHION CLUTCH



ANOTHER  
OSGOOD "FIRST"



POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE **OSGOOD** CO. **O-G** THE **GENERAL** CO.  
EXCAVATOR

MARION OHIO  
DIESEL, GASOLINE OR ELECTRIC POWERED •  $\frac{3}{4}$  TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

# NEW! *DISSTON* ONE-MAN CHAIN SAW

with Mercury Gasoline Engine

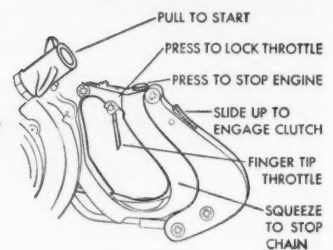


## SERVICE PROVEN . . .

A time and money saver

Use it for light felling and bucking, for  
limbing, and construction timber cutting.

### CENTRALIZED CONTROL



Here's a ONE-MAN Chain Saw with everything you could ask for. It has extra power and cutting speed. It's compact, well-balanced, light in weight. It's safe and easy to handle, simple to operate . . . Delivers full power with saw held at any angle . . . Will stand up long in hard, steady work . . . service proven. And it bears the Disston name . . . carries the Disston guarantee . . . your assurance of top quality in every detail.

### RUGGEDLY BUILT FOR TROUBLE-FREE SERVICE

Use the Disston ONE-MAN Chain Saw on any kind of cutting within its 18" capacity. You'll say, as so many others are saying, "It's a real engineering achievement." Examine its special features. 2-cycle,  $3\frac{1}{2}$  h.p. (4000 r.p.m.), air-cooled engine with anti-friction bearings on all rotating parts . . . each precision built to within very close tolerances. Fuel meter gives automatic fuel feed and also acts as engine speed governor. Built-in automatic chain lubricator. Crankshaft type magneto, doubly protected against dirt and moisture.

Transmission gears run on anti-friction bearings. Clutch is positive, quick acting, manually controlled. Cutting chain of Disston Steel, fully interlocked. Replacable air cleaner. Magnapul starter. All these and many others combine to give you a ONE-MAN Chain Saw you can count on for dependable performance under all operating conditions.



Write today for further particulars



Notching for felling. Note perfect balance because of design and position of handle.

**HENRY DISSTON & SONS, INC., 448 Tacony, Philadelphia 35, Pa., U. S. A.**





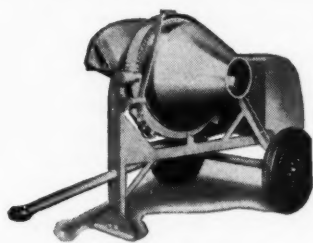
## ... from little fellow to big brother, SMITHS are GOOD MIXERS...

Everywhere you go . . . in both the social world and business world . . . good mixers are popular.

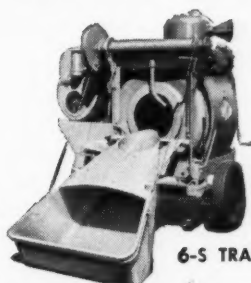
For almost a half century, the name SMITH has been popularly associated with Good Mixers. From the small 3½-S Mascot to the big 112-S Tilter, the World's Largest Concrete Mixer, Smith Mixers rate "TOPS" in the industry. They are popular with contractors because they produce big yardage con-

crete on a fast, efficient production basis. They are specified by engineers because of their uniform mix and absolute dependability.

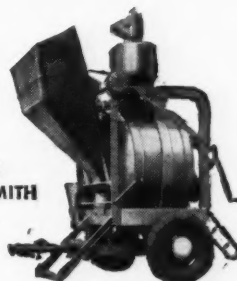
Yes sir — Smith Mixers have been around a long time. Ask any of the users who have associated with them throughout these many years. Invariably, they will tell you "... from little fellow to big brother, SMITHS are GOOD MIXERS"!



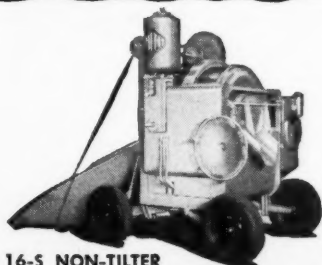
3½-S MASCOT



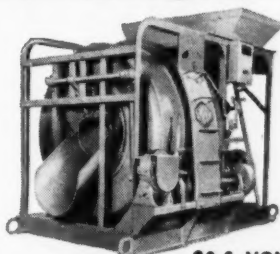
6-S TRAIL-SMITH



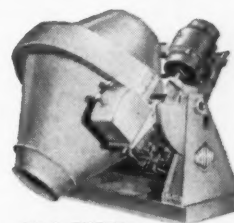
11-S  
TRAIL-SMITH



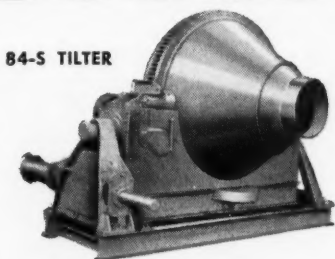
16-S NON-TILTER



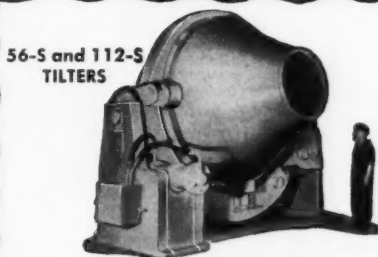
28-S NON-TILTER



28-S TILTER



84-S TILTER



56-S and 112-S  
TILTERS



SMITH-MOBILE  
TRUCK MIXER AND AGITATOR

For that next concrete job, large or small, investigate SMITH Mixers and Smith-Mobile Truck Mixers. Write today for literature. THE T. L. SMITH CO., 2851 No. 32nd St., Milwaukee 10, Wis., U.S.A.



# CONCRETE MIXERS

*Famous for Performance on the World's Greatest Projects*

"...decided to stick around a while"

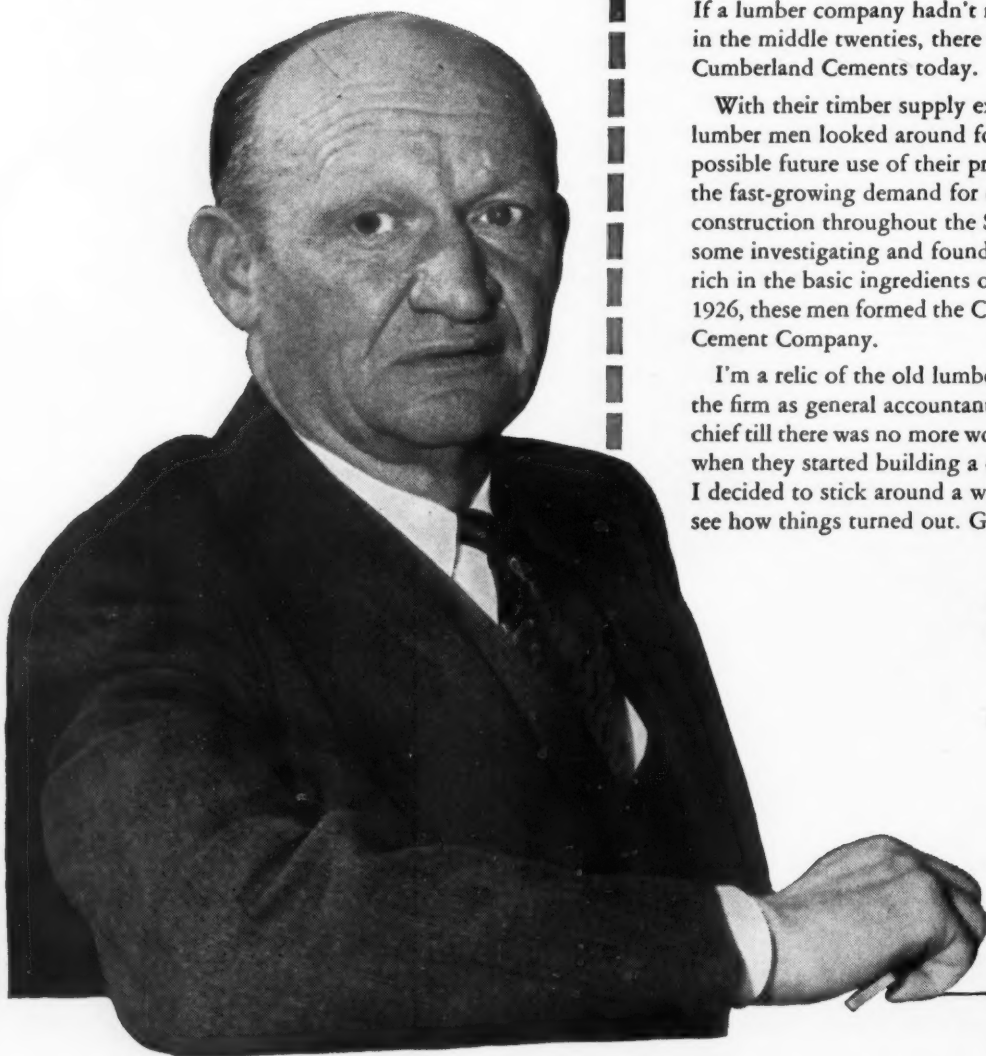


If a lumber company hadn't run out of hardwood back in the middle twenties, there wouldn't be any Cumberland Cements today.

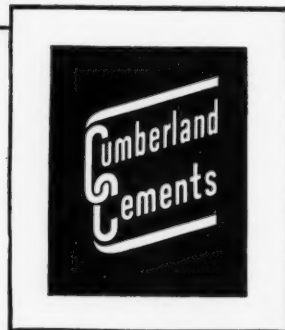
With their timber supply exhausted, the lumber men looked around for the best possible future use of their property. Noting the fast-growing demand for concrete in new construction throughout the Southeast, they did some investigating and found their land fabulously rich in the basic ingredients of cement. And so, in 1926, these men formed the Cumberland Portland Cement Company.

I'm a relic of the old lumbering days. I served the firm as general accountant and commissary chief till there was no more wood to cut. Then, when they started building a cement plant, I decided to stick around a while and see how things turned out. Glad I did, too!

**Glenn J. Hines**  
SECRETARY-TREASURER



*Cumberland*  
PORTLAND CEMENT COMPANY  
Chattanooga Bank Building • • Chattanooga 2, Tenn.



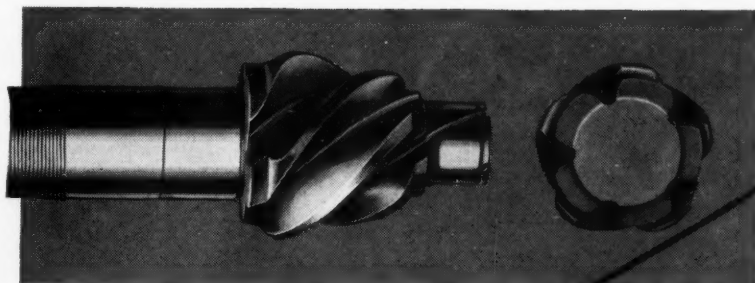
PORTLAND • HIGH EARLY STRENGTH • AIR ENTRAINING • MASONRY

# HYPOLD

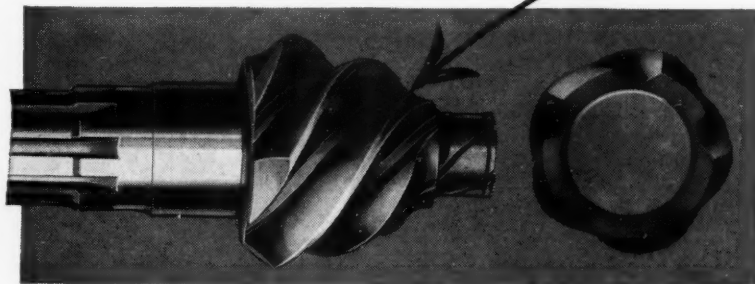
FOR HYPERFORMANCE

BY TIMKEN-DETROIT

*BETTER—  
because the pinion  
is BIGGER!*



Side and end view of spiral pinion with five teeth.



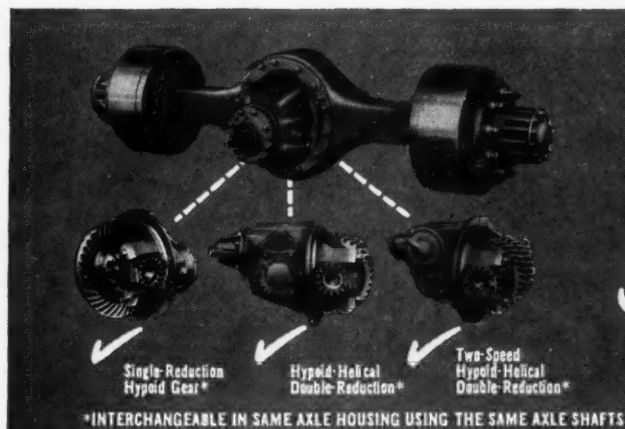
Side and end view of Hypoid pinion with five teeth.

At left are side and end views of a conventional pinion and a Timken-Detroit Hy-Performance HYPOLD pinion. Both pinions have five teeth. Both are for axles of the same capacity.

*Which pinion would YOU bet on for greater strength and longer life?*

Greater pinion size means greater pinion strength—certainly! But HYPOLD means other things as well. Bearings are bigger. More teeth are in contact, reducing individual tooth loading. Slower gear ratios are practical without sacrifice of strength.

HYPOLD GEARING makes a world of difference in axle performance, but other features of Timken-Detroit's great new line of 3-for-1 Axles are just as important, just as much better. Get the facts today—compare—and then, for payload payoff, specify Timken-Detroit 3-for-1 Axles under the next new trucks you buy!



\*INTERCHANGEABLE IN SAME AXLE HOUSING USING THE SAME AXLE SHAFTS

**TIMKEN**  
*Detroit*  
**AXLES**

A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY

DETROIT 32, MICHIGAN





*Cuts all corners  
to get the MIX  
on the road!*

*it's a*  
**MULTIFOOTE**  
*Duomix 34E*  
**DOUBLE DRUM PAVER**

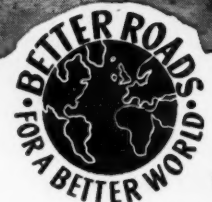


**IT'S** the fast action in handling the batch before, between and after mixing time that means high paver production.

Look over the MultiFoote Duo Mix! The skip is wide—you don't have to fit the truck into it! Skip action is fast. The material is in the first drum in a hurry. The transfer is of the rotary type—a quarter-turn and the material starts into the second drum—fast action here, too. It takes only a quarter-turn to open the discharge and the batch is in the bucket. Everything from controls to dumping the bucket is designed to clip seconds from the mixing cycle. It's a record maker.

See the Duo Mix (Double Drum) MultiFoote 34-E Paver. Talk to owners. You'll find its dependability, simplicity and speed will mean increased profits on your contracts.

**THE FOOTE COMPANY, INC.**  
1910 State Street • Nunda, New York



Annual  
Convention  
and  
Road Show  
SOLDIER FIELD  
CHICAGO  
JULY 16-24, 1948



• Black Top Jobs? Find out about the Adnun. It's the only Black Top Paver that lays stone, cinders, soil cement, gravel or other base materials!

**MULTIFOOTE**  
**CONCRETE PAVERS**

**BLACK TOP PAVERS • FOOTE KINETIC MIXERS**



Sewer trenches and basement excavations yield profits with the Bucyrus-Erie 10-B, 15-B and 22-B dragshovels. Fast and effective, they combine a quick hoist and swing with a powerful digging stroke that fills the dipper at every pass, for a rapid overall cycle that eats up work and boosts output.

The dragshovel dipper, too, adds to efficiency. With a long extended dipper lip that penetrates easily and supplements the relatively long side cutters to hold extra material, it has a high arch that permits easy filling without voids. The 10-B dipper is all-welded, shaped

for fast penetration, accurate digging and quick dumping. Arch and lip of 15-B and 22-B dippers are of a single, heat-treated casting, while the rest of the dipper is of streamlined, all-welded construction matching great strength with a front-to-rear taper for fast dumping and clearance in wide trench work.

Dragshovel efficiency is only one of the features which have made the Bucyrus-Erie 10-B, 15-B and 22-B excavators world famous. With *any* front end equipment they are fast, profitable performers. It will pay you to see your Bucyrus-Erie distributor for more information.

**BUCYRUS  
ERIE**

SOUTH MILWAUKEE • WISCONSIN

# FORM-SET



Even when Form-Set rope has been cut, the wires and strands cannot fly apart. There are no locked-up inner forces to make the rope "wild."

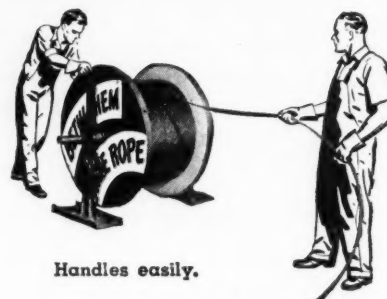
## plays on your side

What we mean is, Form-Set rope begins to save you time the instant you unreel it. Even as the first few feet come off the reel, Form-Set starts to cooperate. You'll notice how it resists kinking; how smoothly and easily this flexible wire rope flows around drums and sheaves. Doesn't waste working time by fighting every move you make.

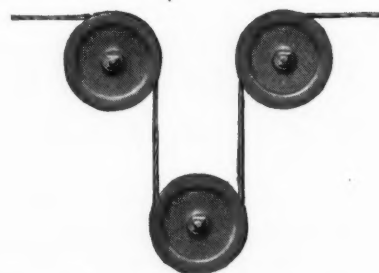
The reason is that Bethlehem Form-Set is preformed rope, and the preforming process relieves internal stresses. The steel wires and strands are "relaxed" at the plant by mechanical means, and the tension can never return. This rope, therefore, is always tractable, well-behaved, easy to handle.

There's another big advantage, too. Because of its freedom from internal stress, Form-Set rope better resists bending fatigue. Thus, on applications requiring sharp or reverse bends, Form-Set often has longer life.

There are probably certain sizes and types of Bethlehem rope that are favorites of yours. Any or all of them can be obtained with the Form-Set feature. A Bethlehem man will be glad to point out where Form-Set rope will be of greatest advantage to you.



Handles easily.



Ideal for reverse bends.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation  
Export Distributor: Bethlehem Steel Export Corporation

**When you think WIRE ROPE . . . think BETHLEHEM**







# NEW CHEVROLET ADVANCE-DESIGN '48 TRUCKS ARE LOWEST IN PRICE!

and have *all* these new and finer features

Here are the *newest* trucks—the *latest* and the *greatest* features—the *biggest* values—with the *lowest* prices in the volume field! Model for model, and with comparable equipment and specifications, Chevrolet Trucks *list for less* than competitive makes—some models as *much as \$150!* Here is Advance-Design that provides the cab that “breathes,”\* Flexi-Mounted Cab, Uniweld all-steel cab construction, fully adjustable seat, all-round visibility with rear-corner windows,\* extra-durable frames, specially designed brakes, and many other features that put Chevrolet trucks far ahead of the field. See them at your Chevrolet dealer's.

CHEVROLET MOTOR DIVISION, GENERAL MOTORS CORPORATION  
DETROIT 2, MICHIGAN

\*Fresh air heating and ventilating system and rear corner windows optional at extra cost.

## NEW CHEVROLET 4-SPEED SYNCHRO-MESH TRUCK TRANSMISSION



This Chevrolet-developed Synchro-Mesh transmission in heavy-duty models provides new ease and efficiency.

## NEW CHEVROLET ADVANCE-DESIGN GEARSHIFT CONTROL



Steering-column gear shift (on models having 3-speed transmission) gives new freedom to the driver, leaves cab floor unobstructed.

## NEW FOOT-OPERATED PARKING BRAKE



Chevrolet's foot-operated parking brake (on models with 3-speed transmission) provides new clear floor area.

## NEW IMPROVED CHEVROLET VALVE-IN-HEAD ENGINE

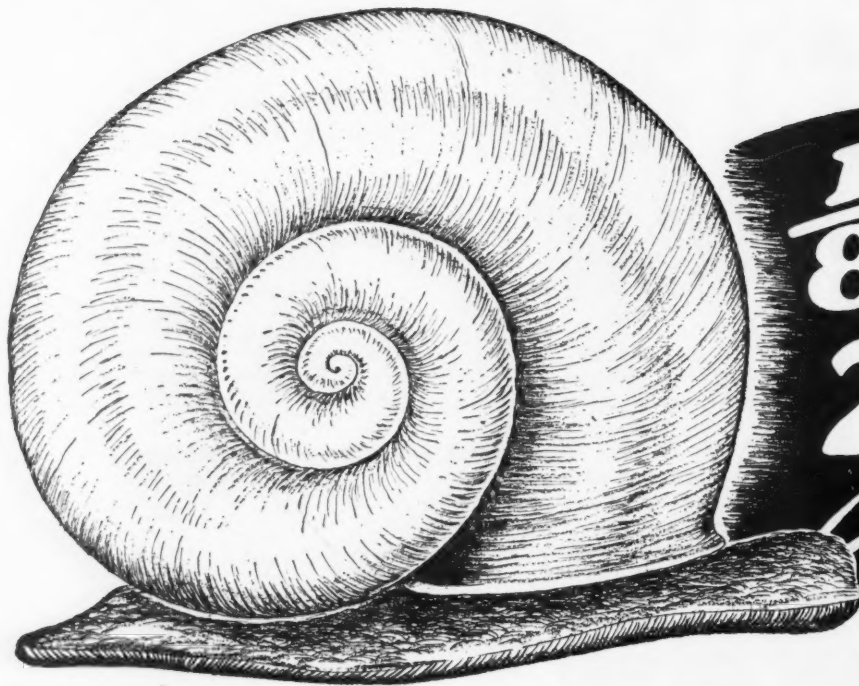


The world's most economical engine for its size. Has greater durability and operating efficiency.

## NEW MULTIPLE-FEATURE DEVELOPMENTS



New splined rear-axle shaft attachment to wheel hubs in heavy-duty models. . . . Heavier springs . . . New propeller shaft bearing-support and seal design.



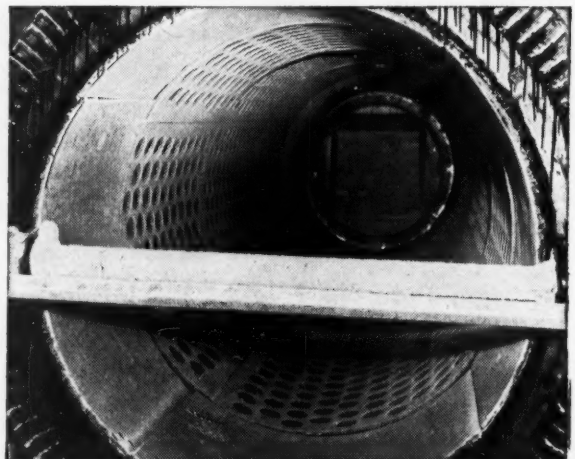
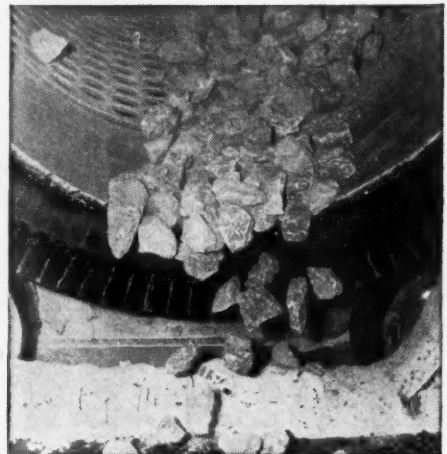
**$\frac{1}{8}$  inch  
in  
27 years**

## THAT'S ALL THE WEAR on these AMSCO MANGANESE STEEL SCREEN PLATES

... and it took the tumbling, abrasive battering of more than 7,000,000 tons of tough Illinois limestone to wear away this minor fraction of the original metal thickness. With a  $\frac{3}{4}$ " thickness remaining, these Amsco Manganese Steel Plates are still on the job in the revolving screen which handles rough sizing and facilitates distribution throughout the plant of the  $3\frac{1}{2}$ " to  $4\frac{1}{2}$ " material from the secondary crusher.

This is only a small part of the Amsco manganese steel used at our customer's plant. In the production of limestone for railroad ballast and other purposes, Amsco manganese steel slows wear on crusher jaws, mantles, bowl liners, and other parts to a snail's pace.

Ductile to resist impacts; polishing and work-hardening to resist abrasion . . . "the toughest steel known" fights the battle against wear on every front. Take a big slice out of costs and delays caused by equipment repair and maintenance—specify AMSCO MANGANESE STEEL CASTINGS for abusive service.



AMERICAN

**Brake Shoe**

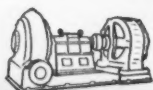
COMPANY

**AMERICAN MANGANESE STEEL DIVISION**

CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo.

Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Que.



MANGANESE STEEL CASTINGS  
"CHROME-MOLY" STEEL CASTINGS  
HARDFACING ELECTRODES  
GRINDING MILL PARTS



DIPPERS DREDGE PUMPS CRUSHER PARTS

CHAINS

SOLIDS PUMPS

BUCKETS

WHEELS



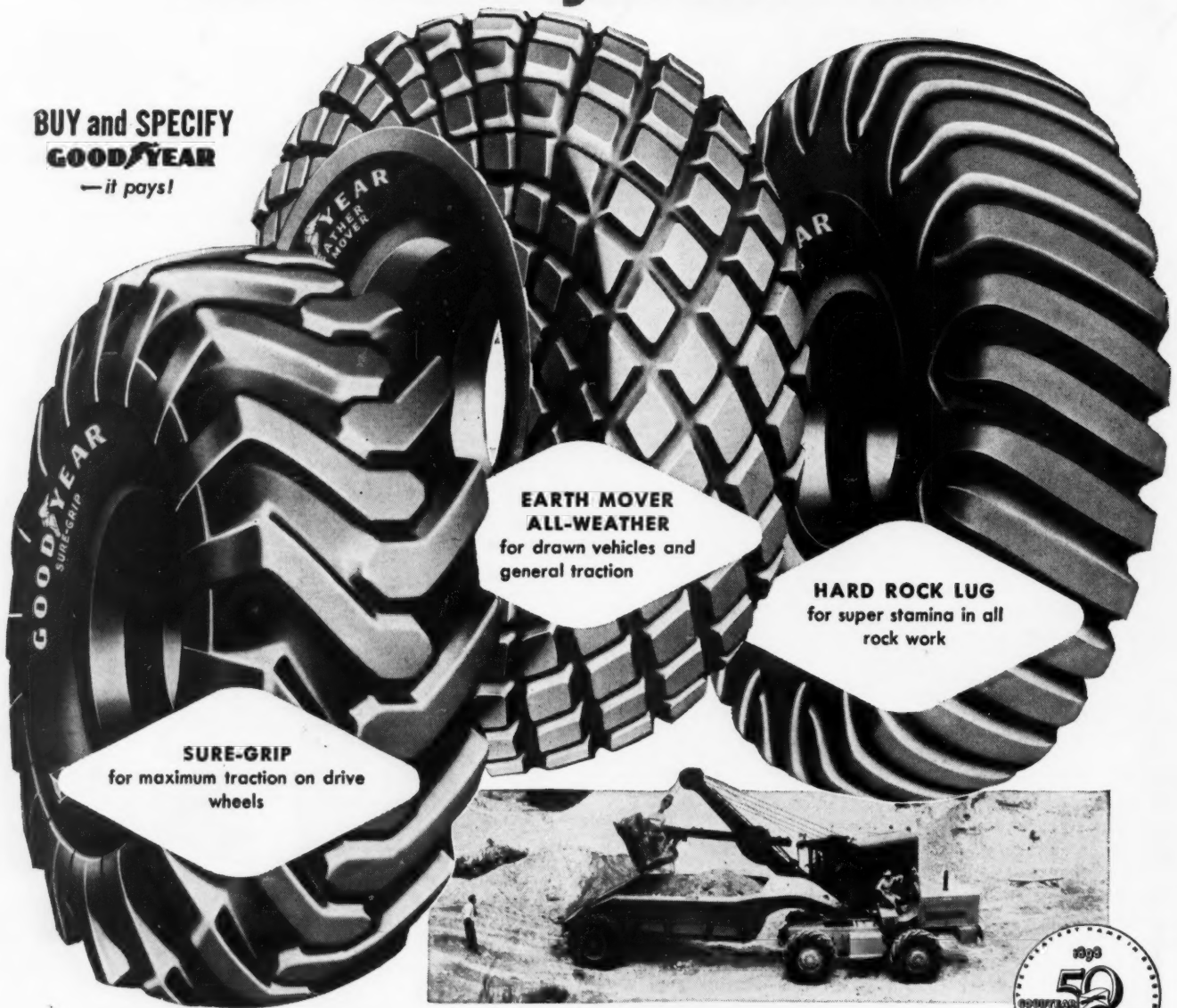




Goodyear helps lick the big jobs with a choice of work tires — each one "right" in body and tread for its kind of work — each one built to take more punishment, move more dirt faster at lower cost. That's the big reason why

# More yards are moved on Goodyear off-the-road tires than on any other kind

BUY and SPECIFY  
**GOOD YEAR**  
— it pays!



**EARTH MOVER  
ALL-WEATHER**  
for drawn vehicles and  
general traction

**HARD ROCK LUG**  
for super stamina in all  
rock work

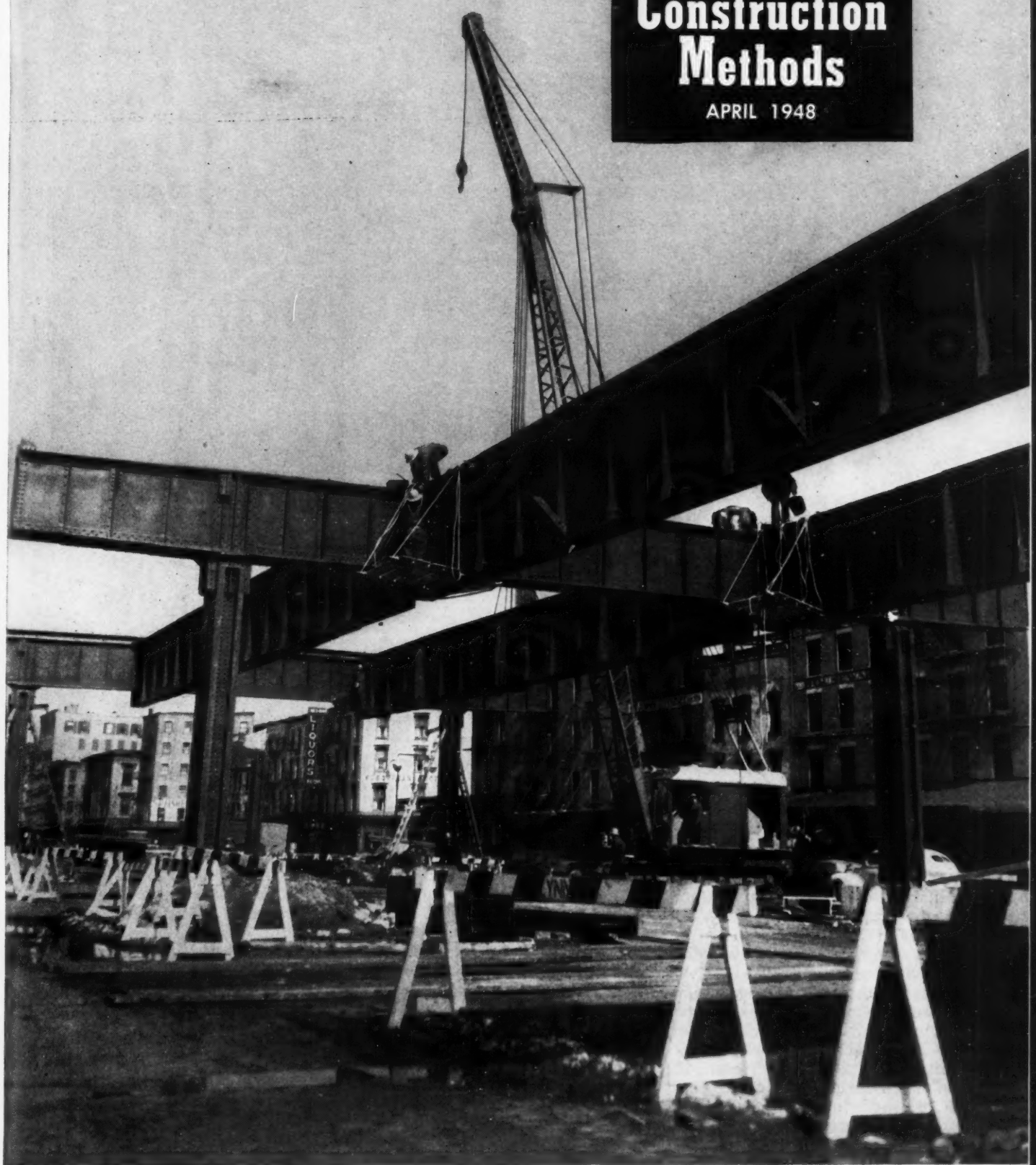
**SURE-GRIP**  
for maximum traction on drive  
wheels

# GOOD YEAR

Sure-Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company

# Construction Methods

APRIL 1948



Mal Gurian photo

## Aerial Approach to New York Tunnel

MANHATTAN'S WEST SIDE elevated highway is being extended southward in West St. as one of the main approaches to the Brooklyn-Battery Tunnel being driven under New York Harbor between lower Manhattan and Brooklyn. Here on the elevated

approach section a Gerosa Crane Service Lima crane sets a 30-ton girder for Bethlehem Steel Co., subcontractor for 3,000 tons of steel for Lynn Construction Co., New York, who has the contract for the Duane to Barclay St. section of the job.





SOMETHING NEW in cofferdams is this gravity concrete structure forming upstream and river arms of 18½-acre inclosure at Bull Shoals Dam. Downstream arm, at extreme left, is an earth embankment. Diversion channel for first stage operations is in foreground. To right is sluiceway that will later be closed by concrete stoplogs as part of second stage cofferdam.

## *Something New...*

### **Concrete Cofferdam at Bull Shoals**

TO MEET U. S. Corps of Engineers' specifications for a cofferdam that will stand overtopping, Ozark Dam Constructors, contractors for Bull Shoals Dam on the White River in northwestern Arkansas, have built a gravity-section concrete dam, 40 ft. high and 1,580 ft. long on the upstream and river arms of the first stage foundation inclosure on the big project. An 850-ft. embankment closes the cofferdam at the downstream arm, completing an 18½-acre inclosure, 65 percent of entire job requirements.

During first stage operations the river is being diverted through a channel 300 ft. wide dug along the base of the left-bank bluff. Spanning the diversion channel at the river end of the upstream cofferdam arm is a sluiceway consisting of a concrete floor slab and 16 piers, 3 ft. wide, with sloping up-

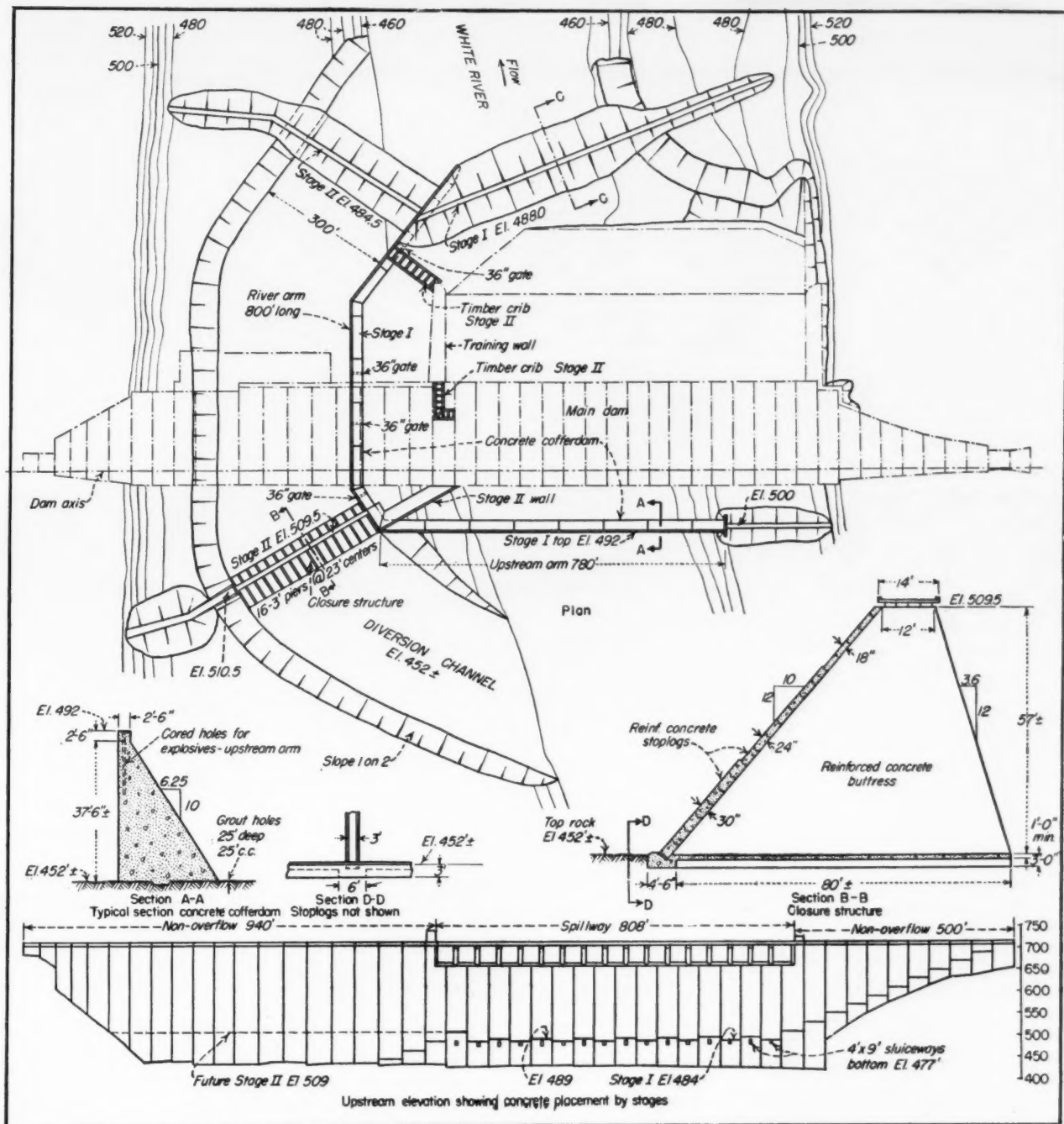
stream ends. Precast concrete stoplogs, 23 ft. long, will be dropped into place at the upstream ends of the piers to effect the river closure for second stage work. Then the river will flow through 16 conduits, 4x9 ft., in the first stage section of the dam, with a few blocks in this section left low to pass possible floods.

Bull Shoals Dam is a massive gravity-section structure 283 ft. high and 2,256 ft. long being built as a combined flood control and power project on White River, Ark., just south of the Missouri border by the Little Rock District, U. S. Corps of Engineers. A central overflow section 808 ft. long will carry 17 tainter gates, flanked by non-overflow sections 508 ft. and 940 ft. long at right and left ends, respectively. The dam will require 2,100,000 cu.yd. of concrete and

850,000 cu.yd. excavation. Pertinent elevations of the structure are: Lowest foundation, El. 425; streambed, El. 450; sluiceway conduits, El. 477; spillway crest, El. 667; gate crest, El. 695, top non-overflow section, El. 708. Three 40,000 kw. power units will be installed at first, with provision for five more similar units.

A low bid of \$24,264,000 was submitted for Bull Shoals Dam in July, 1946, by a combination known as White River Constructors. Award was delayed until Dec. 23, 1946, when the low bidder refused to sign a contract because of increased costs. The job was re-bid in May, 1947, this time excluding the aggregates and cement. The same combination, plus two additional firms, bid \$22,146,000 under the name of Ozark Dam Constructors, and were awarded the job.





**HUSKY CONCRETE COFFERDAM**, designed for possible overtopping, extends for 1,580 ft. as upstream and river arms of first stage inclosure. When excavating diversion channel, contractors also built lower part of clever closure works as sluiceway to be closed later by precast concrete stoplogs. These works,

with short wall at upper end, two timber cribs and embankment across outlet of diversion channel will constitute second stage cofferdam. Top of first stage upstream arm will be blown off for steam diversion through dam conduits and slots. River arm will be leisurely demolished in the dry.

Meanwhile, river sand and gravel were deemed unsuitable by the engineers, so crushed stone and manufactured sand were designated as aggregates to come from a quarry 7 mi. away. The same contractors, bidding under Flippin Materials Co., were awarded the aggregate contract for \$9,301,600.

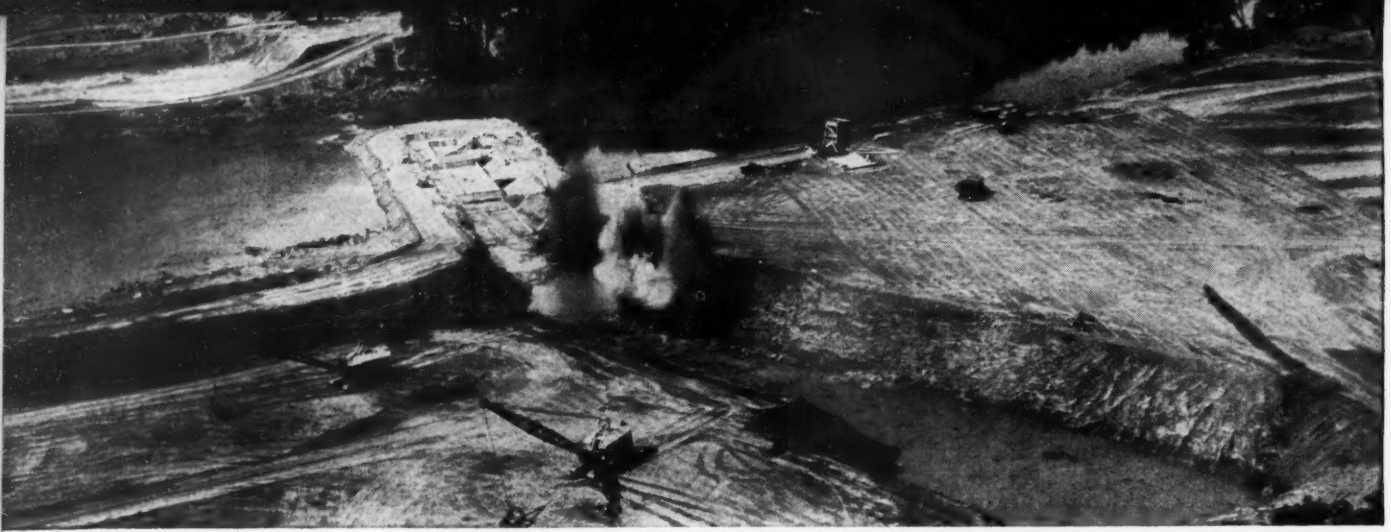
The change in the dam specifications between lettings also in-

cluded some assumption of diversion risk by the government. If the contractor would provide diversion for 150,000 cfs., and build a cofferdam that could be flooded and also could stand overtopping, the government would pay for flood damage to permanent works.

Naturally, these requirements called for a substantial cofferdam. The contractors at first planned a

cellular sheetpile cofferdam, but delayed delivery on piling threatened the job progress schedule, which, along with the fact that steel sheetpiling is gold plated these days, led to consideration of a concrete cofferdam alternate.

The contractor's approved plan for diversion calls for first stage protection to El. 492. As suitable rock foundation for the cofferdam



### *Upstream Arm . . .*

Concrete cofferdam was started at right end of upstream arm by crowding river against extreme right bank. This view shows concrete placing in first two 100-ft. blocks, and blasting and excavation for remainder of arm and closure structure.



### *River Arm . . .*

Foundations for 800-ft. river arm section of cofferdam were excavated along with diversion channel. Lima dragline loading Euclid trucks is at work on channel excavation. Downstream cofferdam embankment takes off from left end of high forms to opposite shore.

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### *Closure Structure . . .*

Sixteen piers on concrete floor slab spanning upper end of diversion channel form sluiceway to be closed later for second stage operations. Concrete plant for cofferdam was set up on flood plain above structure. Pilot cut for diversion channel approach has been excavated; fill around concrete plant was later removed to make way for full channel approach.





was found roughly at riverbed level, El. 452, this required a dam about 40 ft. high. A gravity section was designed with a 2½-ft. crest width, a vertical upstream face and a sloping back face of 0.625 to 1. The upstream arm, parallel to axis of main dam, is 780 ft. long, tying in with a river arm along the diversion channel 800 ft. long. Four 36-in. Hardesty sluice gates were installed in the river arm for flooding. A riprapped embankment 850 ft. long, with a 12-ft. crest at El. 458, closes the downstream side of the cofferdam. The gravity-section wall contains 31,125 cu.yd. of concrete. Grout holes, 25 ft. deep and 25 ft. apart, have been drilled under the downstream toe of the cofferdam wall.

### Second Stage Cofferdam

In preparation for the second stage cofferdam, which must protect to El. 509.5, the contractors built the closure works along with the first stage. These consist of a series of 16 piers on a concrete slab across the diversion channel. The piers are 3 ft. thick, 80 ft. long at the bottom and 12 ft. at the top, set 23 ft. apart c. to c. The upstream ends are on a 1 to 1.2 slope. Precast reinforced concrete stoplogs, from 18 to 30 in. thick and 23 ft. long, will be dropped against the upstream ends for the closure.

Additional second stage structures include a concrete wall tying in the closure with the main dam, two rock-filled cribs at the



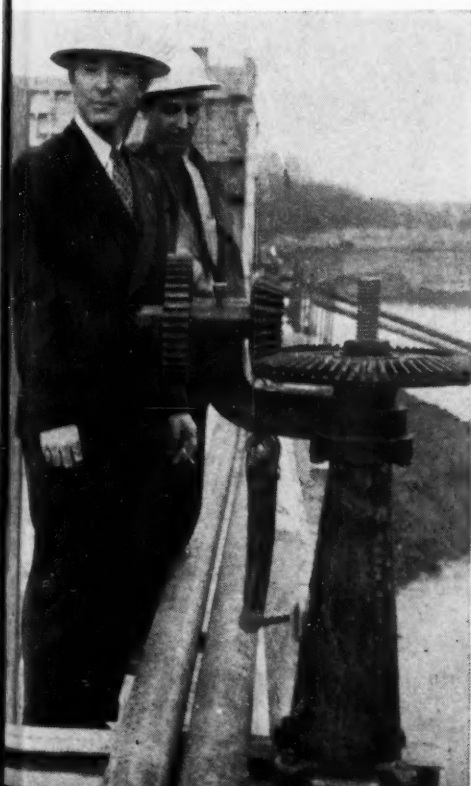
WHITE RIVER, running here about 1,500 cfs., passes through closure structure at entrance to diversion channel. Forms in place on piers are for next lift which will raise piers to 58-ft. height required for second stage protection.

overflow section training wall, and an embankment across the lower end of the present diversion channel. For the second stage the present upstream cofferdam arm must be removed at least to El. 477, invert level of the conduits in the dam. A series of vertical holes has been formed in the upper 15 ft. of this arm to take explosives for fast demolition of the structure. The river arm can be removed at leisure in the dry.

Construction of the cofferdam was fairly simple. The original riverbed was close to the right bluff, leaving a broad flood plain

against the left bluff. An earth embankment from the left side temporarily restricted the river flow while the main part of the upstream arm was built in 100-ft. blocks. Meanwhile the diversion channel and foundations for the closure structure were excavated. The river arm was built within the channel excavation. Spoil from the channel was dumped into the downstream cofferdam embankment.

River run sand and gravel, without proportioning, were used for concrete aggregates. A concrete plant was set up on the flood plain



OPERATING MECHANISM for one of the four Hardesty 36-in. gates on river arm for flooding the cofferdam is inspected by GEORGE ROBINSON, assistant chief, Construction Division, Little Rock District, Corps of Engineers, and LINCOLN SHERMAN, Assistant project engineer.



TOP 15 FT. of upstream arm must be removed quickly for second stage diversion through conduits and slots in dam, so contractors formed holes in cofferdam to take explosives for fast demolition. Job air and water lines are carried around 18½-acre inclosure on top of cofferdam walls, which also support some of the floodlights for night work.







DRY, WELL PROTECTED working area for first stage operations is inclosed by the concrete cofferdam, here seen from top of right bluff. Cofferdam doesn't leak; water patches are from rain and snow. Left abutment excavation is under way on far bluff. Army engineers can watch progress of job from comfortable office building and dormitory on top of the bluff.

upstream from the cofferdam from which concrete was trucked in buckets to this structure for placement by crane. The diversion channel was excavated mostly by shovels and draglines loading into Euclid trucks.

Bull Shoals Dam is being built under the general direction of Col.

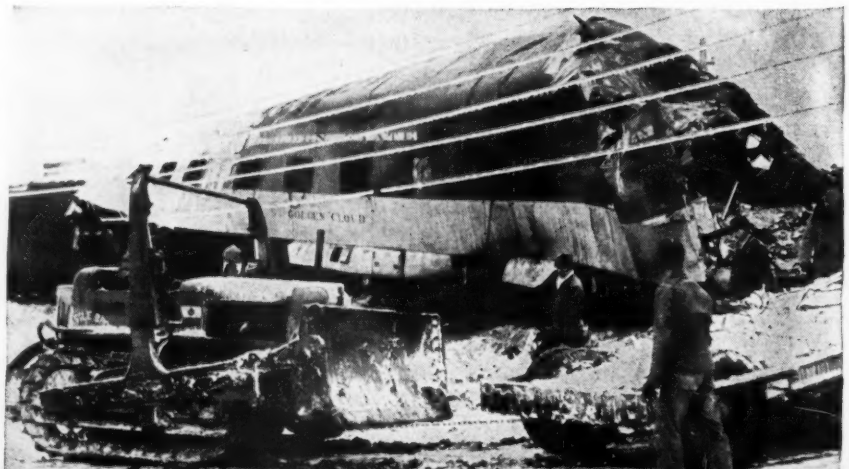
G. E. Galloway, U. S. District Engineer at Little Rock. Ralph Johnson is project engineer in charge at the dam, assisted by Lincoln Sherman.

Ozark Dam Constructors is made up of Brown & Root, Inc., Houston; Morrison-Knudsen Co., Inc., Boise, Idaho; Wunderlich Contract-

ing Co., Inc., Jefferson City, Mo.; Peter Kiewit Sons Co., Omaha; J. C. Maguire & Co., Los Angeles; Winston Bros. Co., Minneapolis; David G. Gordon, Denver; Condon-Cunningham Co., Omaha, and Chas. H. Tompkins Co., Washington, D. C. Brown & Root, Inc., are sponsoring the joint venture.

## Bulldozer to the Rescue

PRESSED INTO SERVICE to rescue 48 passengers injured in a rail wreck that killed 14 near Ottersville, Mo., this Allis-Chalmers HD-7 bulldozer worked a 36-hr. stretch building access roads for ambulances and rescue personnel. Also, to free people trapped in a telescoped sleeping car, the machine carefully pulled sections away with hook and chain when danger of fire prevented burning with torches.





HIS BUSINESS is selling construction machinery, but Paul Reinhold's avocation is highways, for he has a passionate interest in road planning, construction and use. Then, as a hobby, he collects miniature models of ancient highway vehicles, and tops off his roadbuilding interest by acquiring striking highway photographs from each state and from every part of the world, most of them autographed by high officials. He has served as first vice-president of the American Road Builders Association for 13 years, but so far has refused to step up to president, for, he feels, that would be the end of his usefulness to the association.

Paul is Pennsylvania Dutch (and he can tell side-splitting Dutch stories by the score), born May 7, 1890, at Marietta, Lancaster County, Pa. He graduated as a mining engineer from Lehigh University in 1913, then joined Pittsburgh Steel Co. as an engineer and draftsman. Later he served as salesman for the Crucible Steel Company of America at Pittsburgh.

In 1923 he organized his own firm, Reinhold & Co., Inc., in Pittsburgh for marketing crushed stone and allied products for highway construction. Paul retired from the company in 1940. Meanwhile, in 1935 he organized Atlas Equipment Co. in Pittsburgh, and has been its president and treasurer ever since.

You might find him busy selling Euclid, International Harvester,



PAUL REINHOLD

Thew or Buffalo-Springfield products, his four leading lines, for he blankets Western Pennsylvania with these machines. But like as not you'll find him in Washington appearing before Congressional Committees, or at ending directors' meetings of A.R.B.A., or of the Pittsburgh Chamber of Commerce, or of the Fort Pitt Bridge Works, or heading up some committee connected with Pittsburgh public works. Or, if you are out on a good highway, that rocket on wheels whizzing by will probably be driven by Paul, accompanied by his genial wife Claire, going from here to there in a hurry. He's known as America's No. 1 speed demon on the road.

His chief characteristic is his intense interest in each and everything he tackles, whether it be an equipment sale, a highway program, a civic problem, or another

Dutch story. His soft-spoken drawl belies a lightning mind that jumps from Lorain shovels to Pittsburgh traffic snarls to Pennsylvania Turnpike extensions to Conestoga wagons and Chinese rickshaws and back to equipment repairs without slowing down or even throwing a switch.

Affable, debonaire Paul Reinhold is more than a salesman and industrialist, more than a civic promoter and hobby collector—he is an institution without counterpart. Ever mindful of highway transportation development from ancient times to present, ever envisioning an adequate highway system for the future, he is spending a busy, fruitful life in promoting better roads, better business and better government for a better America. Construction has no greater champion than Paul Reinhold.





400,000 YD. OF OVERBURDEN was washed off by sprinklers. Of this about half was pumped to natural filter beds consisting of a 12- to 18-in. thick tundra as shown here. Water filtering downstream to be reused made it possible to do work in dry season.

## Working Frozen Ground in the Arctic



W. A. KRANER (right), in charge of design and construction of dam, and HARRY GILSTRAP, superintendent, standing in front of lonesome headquarters office only 40 mi. from Arctic Circle.

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BUILDING AN EARTH-FILL DAM 40 mi. from the Arctic Circle, where winter temperatures go down to  $-90^{\circ}\text{F.}$ , is a tough job but not too tough for those who know how. W. A. (Big Fellow) Kraner, who has completed such a dam for a mining company, has become wise in the ways of working with the forces of nature instead of against them. He even pumped a refrigerant through pipes in up- and downstream toes in order to freeze the foundation and thus keep it in its winter condition during the summer season. Here's how it happened.

The mining company needed a reservoir for placer dredging operations on Hess Creek 90 mi. from Fairbanks. The dam was not to be high—only 83 ft.—containing 480,000 cu. yd. What gave it an unusual aspect, however, was the fact that the so-called open season each year lasts only about 150 days, during which time the ground thaws all the way down to 2 ft. Everything below that is the perpetually solid permafrost.

WHERE ARCTIC OVERBURDEN carries as much ice as shown (below), hydraulic giants are not efficient for stripping. Although 27 giants were on job and later were used successfully for sluicing hydraulic fill, they were soon abandoned for stripping icy ground.





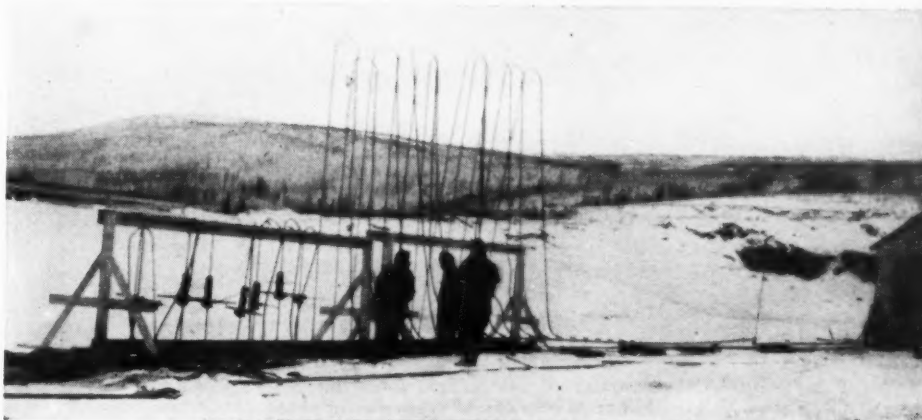
Shipping materials and equipment to the job was so expensive that an earth-fill dam was easily the best bet. How to strip 400,000 cu. yd. of overburden from the damsite was a hard enough problem at best; it became more so when it developed that the season during which this work had to be completed would be extremely short of water. The hydraulic jets that had been planned for this job were relatively inefficient and anyway there was not enough water for operating them. It was up to the Big Fellow to devise some other scheme but quick. The scheme he substituted was to put a network of pipes over the area to be stripped and install 300 to 400 sprinkler heads that would maintain over the stubborn frost-bearing ground a constant torrential rain of water at 52 deg. F. This worked like magic in that it washed and melted off the soil at 4 to 6 in. per 24 hr. and added to the runoff by the amount of frozen moisture in the ground that was melted. Frozen moisture content of the overburden ranged from about 30 percent to solid ice in some areas.

Another part of his scheme was to save and re-use this sprinkled

IN SHIFTING SECTIONS of discharge line and sluice pipes, a very convenient rig was Caterpillar tractor with boom attached.



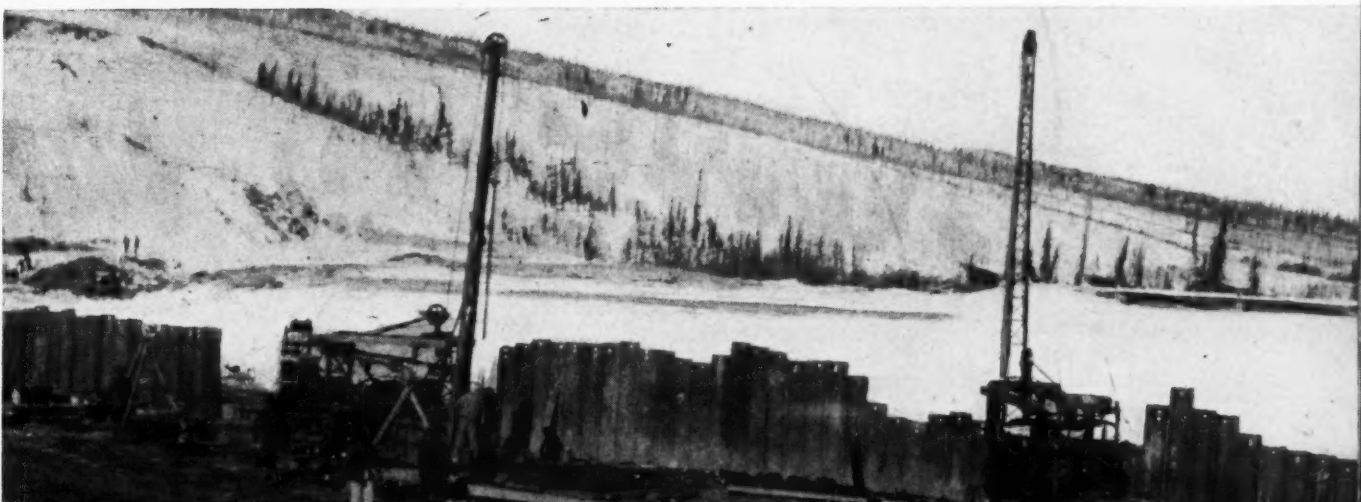
BETTER THAN HYDRAULIC GIANTS were horizontal sprinkler heads that delivered water at 52 deg. F. Using temperature instead of force, a 4- to 6-in. layer was washed off daily. Total overburden depth removed averaged 20 ft.; reached maximum of 30 ft.



SHEETPIILING driven on axis of dam could not be put down until steam pipes had thawed trench. Piledriving did not follow thawing too closely, because it was desirable to have steel piling frozen in soon after driving.

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STEEL SHEETPIILING IN CUTOFF TRENCH (below) was 20 ft. long, extended 13 ft. into foundation. Two drill rigs are putting down holes for vertical refrigeration pipes (not used).





ALONG AXIS OF DAM an area some 80 ft. wide was ribbed with refrigeration pipes laid on 10-ft. centers. Plan was to re-freeze quickly exposed area thawed by summer temperatures, thus giving foundation frozen characteristic on which stability of dam depends.

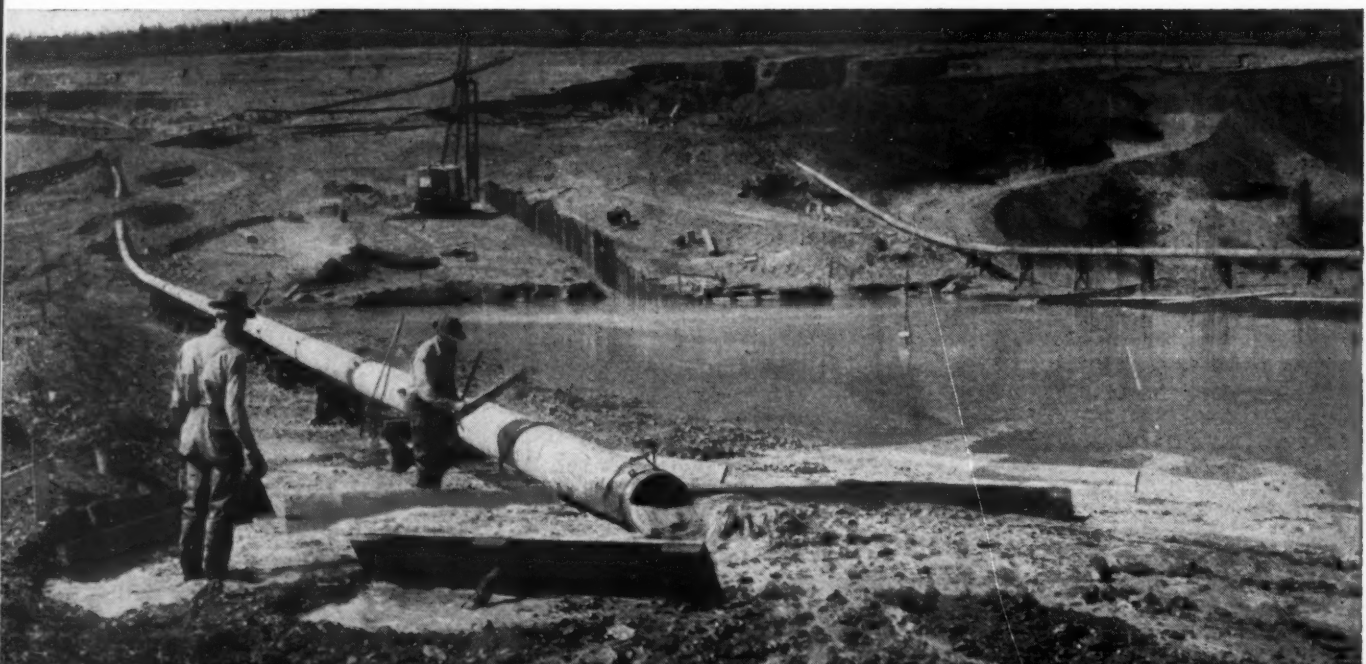


PUMPING PLANT for sprinkling overburden, used later for supplying hydraulic jets in fill borrow pit, floated in pond where runoff was retained above dam. Plant contained four 10-in. centrifugal pumps and during sluicing operations delivered about 15 fps. against a head of 175 ft.

water by pumping it upstream 2,000 to 3,000 ft. where large tundra areas afforded natural filter beds. Discharge on these beds carried an average of 25 percent of solids which immediately filtered out, allowing practically clear water to percolate back into the creek bed and thence to replenish the pool at the dam from which water for the sprinkler heads was pumped. In this circuit there was no loss from deep percolation; in fact, there was some gain in water resultant from melting the underlying permanent ice. Waterborne overburden was pumped from the site to the upstream filter beds by a single 125-hp. diesel pump working against a 40-ft. head and

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MOST OF YARDAGE was delivered to dam through 19-in. main lines (below), one on each side of dam from borrow pit where hydraulic jets worked. Because this pit supplied insufficient fines, secondary sluicing system on opposite end of dam delivered directly into central pool material containing high percentage of fines.







MOST OF 480,000 cu.yd. in dam comes from borrow pits on left bank (far side in this view). Note floating pumping plant at left. In foreground is 8-in. line bringing "make-up" fines to pool.

delivering through 24-in. discharge pipes.

After stripping the site a steel sheetpiling core wall was put down on the axis of the dam and a gridiron of 2-in. pipes laid out in which to circulate a refrigerant that could solidly freeze the 2 ft. of foundation area in the central part of the dam. This was to prevent risk of foundation instability during the summer season in which the foundation was exposed and the fill begun. After that the permanently frozen ground would preclude any danger on this score. Despite this precaution only the toes were frozen. Use of the freez-

ing pipes under the main body of the dam was not necessary because the bottom area of the dam was frozen solid by the tendency of the cold to creep up into the dam from permanently frozen ground below.

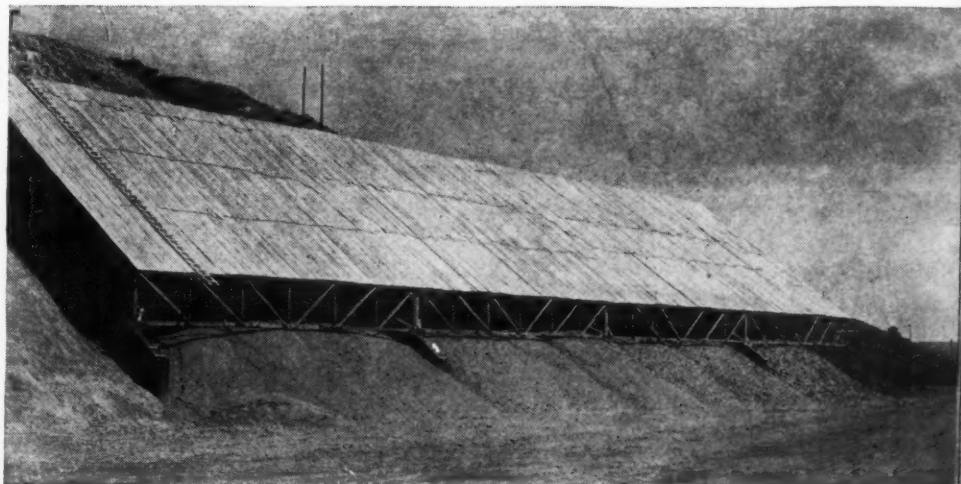
The hydraulic fill methods, except for the frozen ground feature, were not unusual. The fill was carried up to within 27 ft. of the top of the dam before construction was stopped by the war. In 1946, by which time the central core of the dam had time to become well consolidated, the final 27 ft. was put on as a rolled fill. Readings taken during the last summer sea-

son, a year after completion of the dam, showed that it provided an adequately tight structure as the seepage from the reservoir around and under the dam was 0.3 acre-ft. per day, only half the amount estimated.

The structure was built for Livengood Placers, Inc., E. A. Julian, general manager. W. A. Kraner was in charge of design and construction of the dam and remained at the site during construction. D. C. Byer as project manager selected the location of the dam and supervised drilling operations. George E. Purser was project engineer, H. Gilstrap was superintendent.

## Shed Shades Aggregate at Davis Dam

BY SHADING STOCKPILES from the hot Arizona sun, Utah Construction Co. is reducing ice-cooling of aggregate for 500,000 cu.yd. of concrete at Davis Dam on the Colorado River. Aggregate is stored in a 4,000-cu.yd. four-compartment bin built against a bluff for easy truck delivery along a road cut into the hillside. Over the bin a shed roof of 1 in. wood sheathing on timber trusses shades the stockpile to keep it cool and dry.





# A. G. C. Mixes Fun and Labor Theme Dominates Meeting



LABOR RELATIONS had top billing at the 29th annual convention of the Associated General Contractors of America at Dallas in February, and this quartet were star performers. CARL JANSEN (left) president of Dravo Corp., Pittsburgh, and chairman of the A.G.C. Labor Relations Committee worked hard, along with a special committee, to formulate and present plans for the association to participate in a joint labor-management board for settlement of jurisdictional disputes. RICHARD J. GRAY, President Building Trades Dept., A.F. of L., assured the

contractors of labor's willingness to cooperate in the plan. JAMES D. MARSHALL, A.G.C. assistant managing director and the association's labor expert, has worked long and hard with union representatives on the idea. ROBERT L. DENHAM (right) chief counsel, N.L.R.B., told both contractors and labor they had better get together on a jurisdictional plan or the Board would take over "and you won't like it." He also told the contractors in no uncertain terms that construction comes under the Taft-Hartley Act.

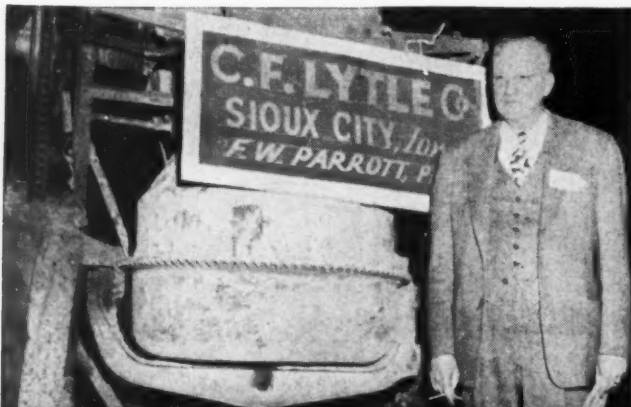
Denny Hayes photo

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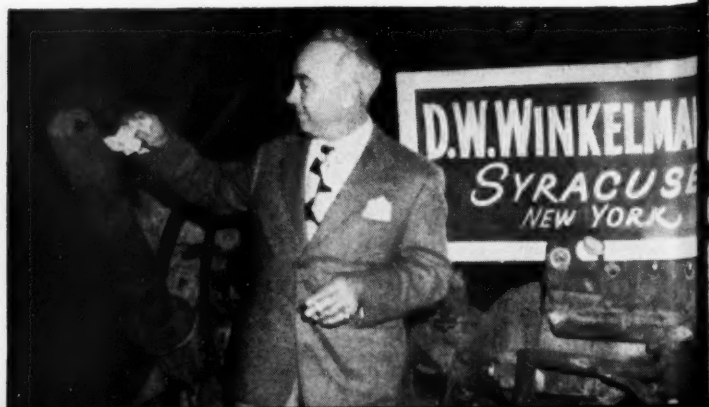
## Unlisted Equipment Show

IN HIGH HOPES of doing a little business on the side at the convention, both retiring-president FORREST W. PARROTT and incoming-president DWIGHT W. WINKELMAN shipped some slightly-used unstreamlined equipment to Dallas with the idea of unloading it on unsuspecting Texans. They exhibited their wares at the big Ranch Party. All went well until they tried to sell each other, then . . .

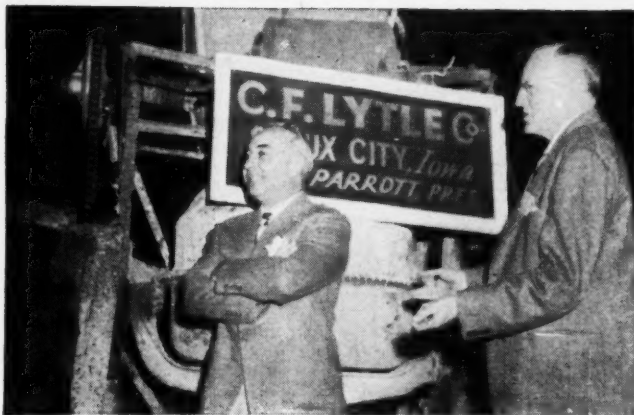
**1** STANDING in front of his "Little Atom Bomb" concrete mixer, Parrott becomes fed up with lack of customers, glowers at . . .



**2** HIS ENTERPRISING RIVAL, Winkelman, proudly polishing up his "Super-Belcher" primeless pump. Then . . .



# Business at Dallas



**3** PARROTT LURES Winkelman into his lair, pleads and entreats for a sale or a trade or any kind of transaction. Is Wink impressed? Ha! Note that smug "you can't sell me" attitude. Words give way to action, until . . .



**4** OH, OH, the going gets rough and the cops move in with clubs and handcuffs. Forrest gets the best of the deal, for he can still smile, while Wink sports a mean shiner hung on his left lamp. ED. NOTE—The Dallas garbage and refuse service hauled the equipment away.

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## Everybody Relaxed at Big Ranch Party

IN TRUE TEXAS STYLE, the local people played hosts to the visiting delegates at a big Ranch Party staged at Dallas Fair Grounds. Did they have fun? Take a look at these pictures. Sorry we couldn't include everybody.



IOWA—that's where the tall corn grows, and the rest of the states heard about it—held down a big table. Included in the group are RALPH GREENE, prominent contractor from Des Moines, and his wife (left) and HELEN and ORVILLE CROWLEY. He is manager of the Iowa A.G.C., also hails from Des Moines.



A GRACIOUS HOSTESS, all dolled up for the affair, MRS. HARRY FRIEDMAN, wife of big Ft. Worth builder, gets a double helping of barbecue from the Odessa Chuck Wagon Gang, which dished up over 2,000 plates that night.

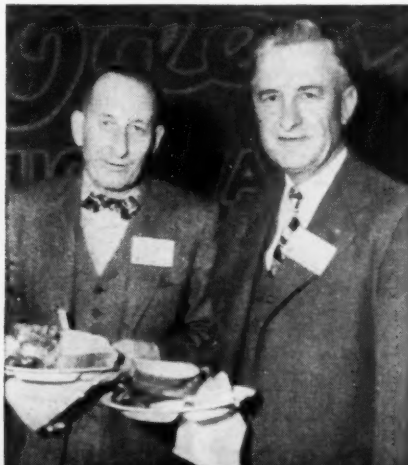


DRAGGED ALONG by his hustling wife, LEONE, (and he seems to thrive on it) GEORGE HELLER, a vice-president of Johnson, Drake & Piper, Minneapolis, heads for the chow line. By the way, you ain't heard nothin' 'til you've heard one of Leone's Swede stories, dialect and all.

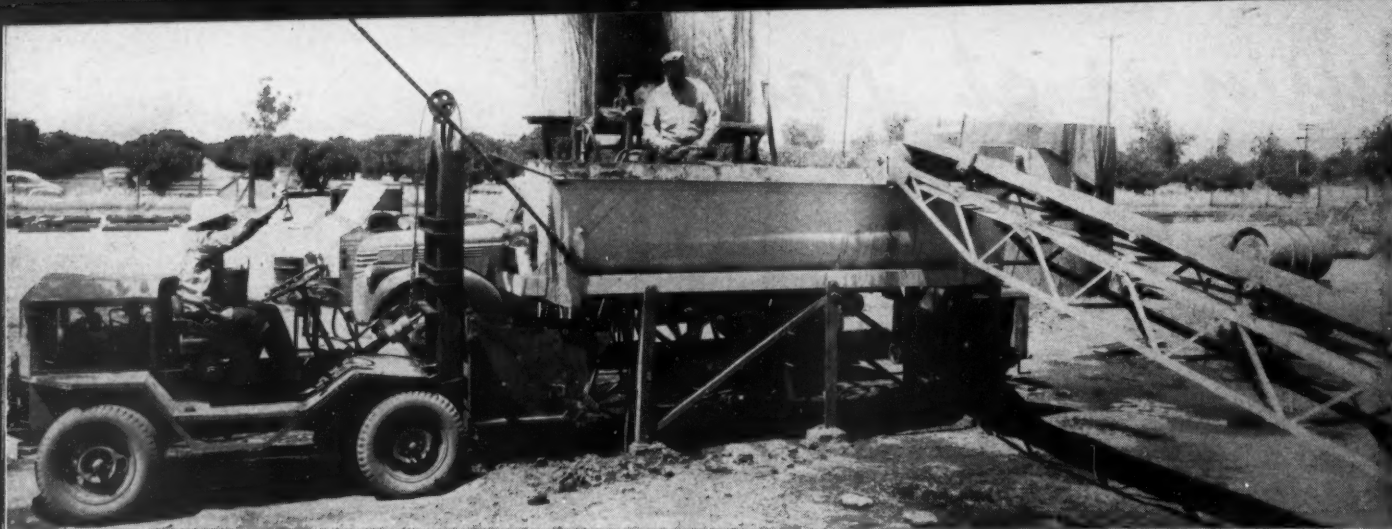
CAN-CAN GIRLS danced, beer flowed freely and everybody ate barbecue and had a good time.

ALL BARBECUED UP and no place to go are MORRIS DeWITT and GAYLE ARMSTRONG, a couple of highwaymen from Missouri and New Mexico, respectively.

TIME OUT for station identification (Los Angeles) was taken by DON SHAW, popular manager of the big Southern California Branch, A.G.C., and his glamour-gal wife, ELEANOR.







SIMPLE MIXING PLANT makes modern asphalt-stabilized adobe brick. Conveyor feeds soil to pugmill where asphalt emulsion and water are added. Transfer cart delivers mixed mud to casting yard

## *A New Building Material . . .*

# Asphalt-Stabilized Adobe Brick



STABILIZED MUD in 1-yd. paddle mixer gets 8-min. mix at Rowland Adobe Mfg. Co.'s plant. Small amounts of soil and water are added until material reaches right consistency for molding into brick.

SUN-BAKED MUD BLOCKS, or adobe brick, have been modernized by scientific blending of soils and the addition of emulsified asphalt stabilizer to make a strong moisture-resistant building material. With improvements in brick ingredients, development of modern brick-making equipment, and refinements in construction techniques, adobe has come of age.

Secret of the water-resisting brick—or Bitudobe—is an emulsion of 60-70 penetration grade D asphalt added to the mix to coat each soil particle. Patented by the American Bitumuls Co., San Francisco, the asphalt emulsion stabilizing process cuts the bricks' water absorption to as little as 1 to 1½ percent of their dry weight in a standard 7-day exposure test, in contrast to 10 to 15 percent absorption by unstabilized adobe. Thus, adobe construction need not be confined to dry climates.

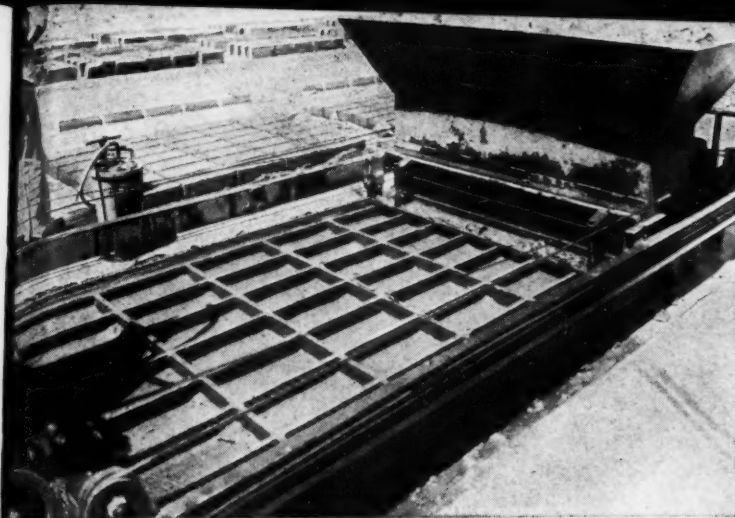
As the waterproofing stabilizer adds little to the structural strength of the brick (300 psi. in compression), but merely protects it, proper selection of soil ingredients is essential. Almost any soil containing colloidal-size clay particles and free from alkali salts and volcanic ash is suitable. The ideal has 25 to 40 percent material passing a 200-mesh screen, and soils with an excess of fines can be brought within this range by adding sand or sandy silt.

Brick manufacturing processes vary, but in general the soil is put

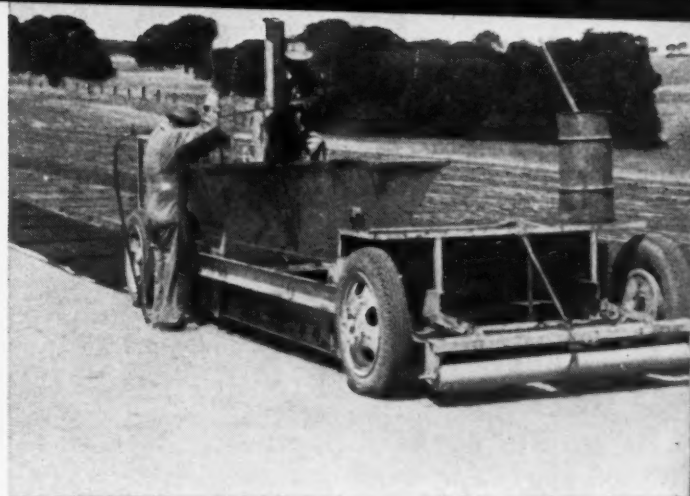


SCOOPMOBILE lifts mixed mud to fill hopper of Sumpf molding machine. Pressure tank at left holds water for spraying form between castings.





**MOLDING MACHINE** carries 35-brick form, here shown half raised from poured blocks. Cables haul hopper along form to pour and screed brick.



**BRICK ARE CAST** on 60-in. strip of paper unrolled automatically from front as rig advances. In 24 hr. blocks will be turned on edge to dry.

through some type of pug- or dough-mill where asphalt and water, and sometimes straw to reduce cracking, are added. After thorough mixing, the resulting plastic mass is either cast in forms or extruded and cut to brick size (usually 4x7½x16 in., weighing 35 lb. dry). Brick are dried in the open on edge to expose maximum surface and save yard space.

One example is the Rowland Adobe Mfg. Co., Walnut Creek, Calif., where topsoil is bulldozed to a 1½-in. shaker screen from which a belt conveys it directly to a mixer. The mixer is a 37x72-in. horizontal steel cylinder in which paddle vanes rotate on a longitudinal shaft. Here a 1-yd. batch of soil, enough for 100 brick, is mixed for 8 min. with chopped straw (about 0.3 percent by weight), 18 gal. of asphalt emulsion, and water. The

mixed batch, smooth and plastic, is dumped to a Scoopmobile that delivers it to the hopper of a Sumpf molding machine in the casting yard.

Capable of molding 1,500 brick per hr., the Sumpf rig is a two-man self-propelled machine, gasoline engine driven and hydraulically

operated. It receives mud in a transverse hopper sliding over a 35-brick mold that is open top and bottom. The machine lowers the mold to the ground where it is filled and struck-off by the passing hopper. The mold is then immediately raised from around the brick and the rig advances one

→  
**GRINDER - MIXER PLANT** of El Adobe Products Co. is another simple set-up. From inclined vibrating screen, soil falls to left bin feeding mixer; gravel rejects go to right bin to be sold.



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**PAIR OF WHEELS** (below) on horizontal axle roll mud in mixing chamber as four vanes on other axle turn and guide material into wheel path. Gasoline engine below furnishes power through central vertical shaft.



**CASTING RIG** (below) pulled by wheeled tractor gets load of mud from transfer truck. Screw conveyors in high-walled troughs circulate mix.





FORM IS LIFTED from freshly cast brick as molding machine moves on to pour next group. Soft plastic mud is forced into mold under almost hydrostatic head of material above.

length to repeat the operation. Brick are cast flat and turned on edge 24 hr. later.

Combined grinding and mixing machines are used at some plants, such as El Adobe Products Co., Sunnyvale, Calif. Here raw material is bulldozed over a grizzly and belt-conveyed to a  $\frac{5}{8}$ -in. vibrating screen over a storage hopper. Screened material feeds into a grinder-mixer where asphalt emulsion ( $\frac{1}{2}$  gal. per cu.ft.) and water, previously proportioned in a mixing tank, are added. Two 18-in. wheels with 8-in. steel tires travel a circular path on the bottom of the machine's vertical cylindrical chamber to roll and knead the material for 2 min. Each 5-cu.ft. batch is bottom-dumped to a high-walled  $\frac{3}{4}$ -yd. trough where a screw con-

veyor circulates accumulated mix against a closed outlet until discharge for transfer to the casting yard.

The transfer unit is a similar screw trough, truck-mounted. It discharges into yet another hopper and screw on a molding machine drawn by farm tractor. For 1-man operation, the tractor's steering gear is locked straight ahead and its clutch is controlled by the mold operator at the rear. Mud from a quick-acting gate in the hopper bottom surges into a mold—3 brick wide, 5 long—on the ground beneath the machine. The gate is closed after each 3-brick row is poured while the rig advances one brick-length. Two helpers work with the molder, lifting the form from a group of freshly poured

blocks and moving it ahead for another casting.

A supervisor and six men at this plant produce 2,000 brick in 4 hr., with another 4 hr. spent in preparing stockpiles, turning brick on edge to dry, and in equipment maintenance.

#### Adobe Construction

Adobe construction has improved too. Brick are washed and laid-up wet into 16-in. walls on concrete slabs or footings. Joints are  $\frac{1}{2}$ -in. thick of portland cement mortar (often with a waterproofing admixture) and each sixth horizontal joint is reinforced by twisted double strands of 12-gage wire near each wall face. Steel bars at the sides of all openings, cemented into grooves cut in the brick, reinforce the wall vertically. Where possible, the bars have one end embedded in the foundation and the other in a reinforced concrete bond beam that tops the wall as a finish course. Lintels are concrete also.

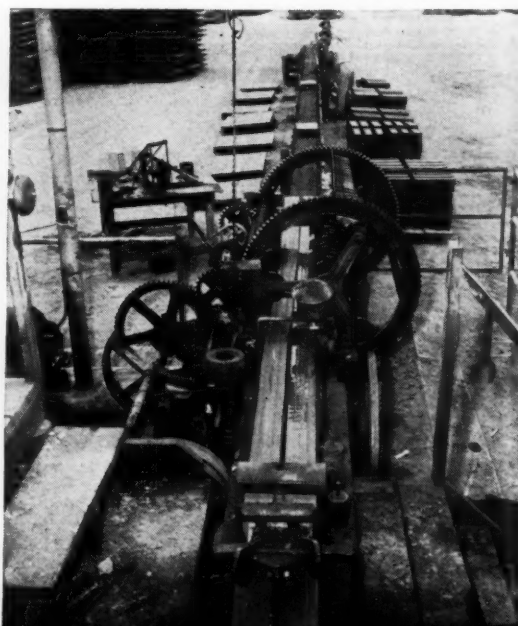
#### Adobe Costs

It is difficult to make a cost comparison between adobe and other construction. Its thick walls increase gross area 5 to 10 percent for the same net, but the large brick go up easily, have good insulating qualities and are proof against rust, dry rot, termites and fire. One experienced contractor estimates material and labor costs for a 16-in. wall at \$250 per M brick or \$1.03 per sq.ft. of wall surface. This is for wall above foundation and includes necessary reinforcing, lintels and cap beams. It is based on a typical brick price of \$160 per M delivered within 25 mi. of the plant.



←  
BRICK ARE COVERED with paper for 24 hr. to prevent shrinkage cracks from too-rapid drying in hot sun. Cover 36 in. wide is unrolled from hand truck, while 30-in. bottom paper on which brick are cast is laid by molding machine.

→  
AT EXTRUSION PLANT of El Adobe Brick Co., Gardena, Calif., wire cutter snips stiff plastic ribbons of mud to brick length. Blended clay and sand go through double-roll pulverizer, then to screw-type pugmill where water and asphalt are added. Pugmill discharges to compounding screw for extrusion through nozzle on to belt.





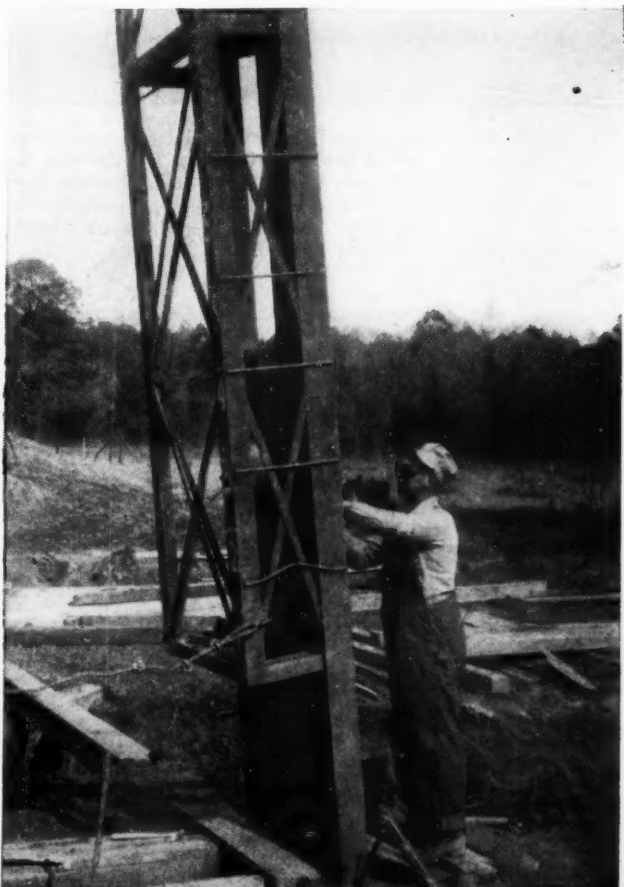
# Walking Driver for Small Pile Job

TO DRIVE 20 H-beam piles, 37 ft. long, for a small Georgia highway bridge, Harry Brown, Milledgeville, Ga., contractor, built a handy drop-hammer walking piledriver out of a Bucyrus-Erie 15B crane. Leads were built up of 8-in. I-beams to which 6-in. channels were welded as guides for the drop hammer and follow block. The two sections were bolted together with  $\frac{1}{2}$ x7x36-in. splice plates which allow for future extensions if desired.

Yokes of 3-in. I-beams, spaced 8 ft. apart, were welded through the beams of the leads. Back corners of the yokes are braced by two vertical 3-in. angles. Lattice bracing of  $\frac{3}{8}$ x1 $\frac{1}{4}$ -in. straps on sides and backs of yokes further stiffens the leads. A  $\frac{3}{4}$ -in. base plate welded to bottom of leads, drift-pinned to 10-in. timbers on the ground, serves as an anchorage for the leads during driving operations.

Because of the weight of the 4,400-lb. leads and 3,140-lb. hammer and block, it was necessary to stiffen the rig's 35-ft. boom with a 5-ft. truss at center of boom, made up of 4-in. angles, cross-braced in all directions. Guys of  $\frac{1}{2}$ -in. wire rope, fitted with 12-in. turnbuckles, run from the truss to boom tip and to boom base. Leads are hinged to a short extension of the boom tip. The crane's normal counterweight was increased by 3,000 lb. to balance the driver.

LEADS (below) are braced by I-beam yokes, spaced 8 ft. apart, held by pair of back angles, which, in turn, are lattice-braced with welded straps. Note base of leads pinned to timbers as an anchor during driving.



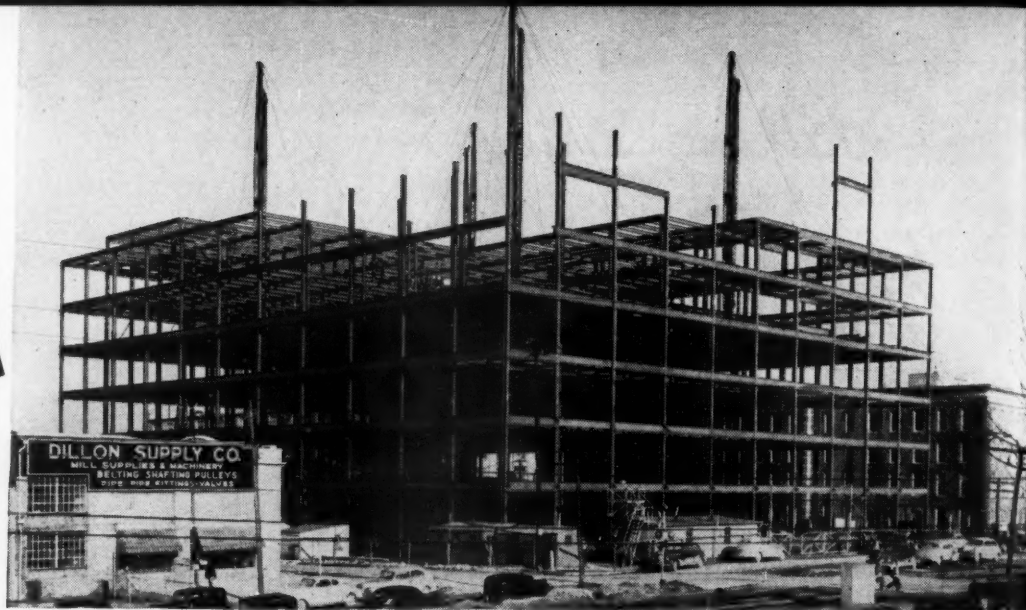
WALKING PILEDRIVER for small job is built by hanging 48-ft. leads on 35-ft. boom of Bucyrus-Erie 15B crane. Rig drives piles to refusal or to 27-ton bearing by 10-ft. drops of hammer. Five bents of four piles each were driven in four 10-hr. shifts.

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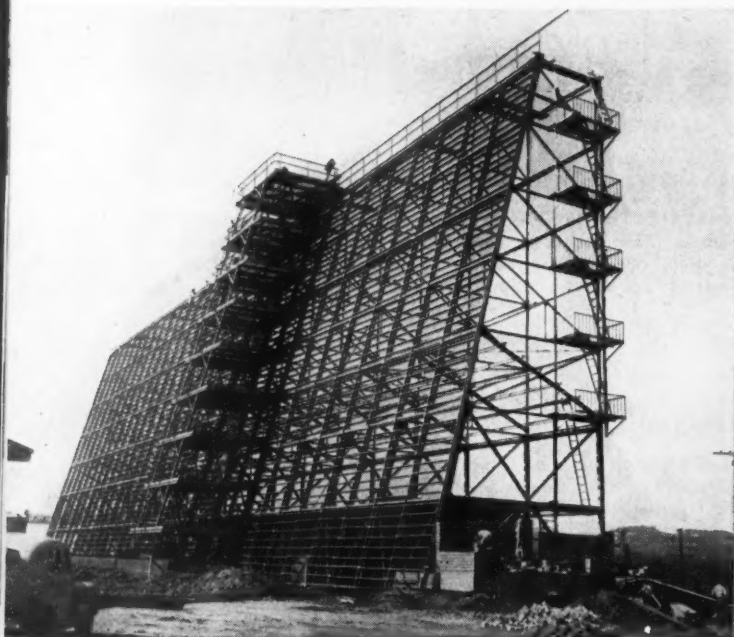
LEADS (below) can be tilted inward or outward by hand for batter driving. Crane boom is stiffened by truss at center and guy wires to base and tip.





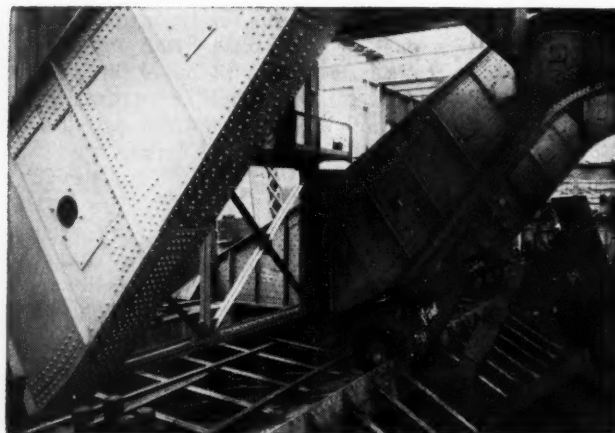


**FOR NEW \$4,000,000 CIGARETTE FACTORY** of Liggett & Myers Tobacco Co. at Durham, N. C., steel frame, involving 3,500 tons, nears completion from plans of Lockwood Greene Engineers, Inc. of New York City architects-engineers for the project. Six-story and basement structure for production of Chesterfield cigarettes has floor area of 350,000 sq.ft. and exterior finish of face brick, limestone trim and aluminum sash. Contractors on project include Raymond Concrete Pile Co., New York, (piling); Wililam Muirhead Construction Co., Durham, N. C., (foundations); Bethlehem Steel Co. (structural steel and erection) and J. A. Jones Construction Co., (general construction).



**HUGE MOVIE SCREEN BACKDROP**, replacing one recently destroyed by fire, is erected on 20th Century Fox studio lot in Hollywood, Calif. On its face when finished will be carried painted scenes used for filming landscapes.

Wide World Photo



**TRUNNION GIRDERS** for new State St. Bridge over Chicago River, Chicago, are set in place by Overland Construction Co. These three girders will carry one leaf of double-bascule span, each leaf is 108 ft. wide, 105 ft. long. Bridge, to be opened this year, will be operated from temporary control houses pending building of permanent control stations.

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**BIG FORD ASSEMBLY PLANT** (below) in New Jersey for Lincoln and Mercury automobiles is under construction at Metuchen by Wigton-Abbott Corp., contractor of Plainfield, N. J., from plans by Albert Kahn of Detroit. New plant will contain a total inclosed area of more than 500,000 sq.ft. of floor space. In addition to assembly division, it will include space for offices and storage, a separate powerhouse structure and an outdoor test track for trial runs.

Ostergaard Photo





**OPEN CUT EXCAVATION** progresses in Chicago for cross-over, turn-around and station section of Dearborn St. subway at south end of present line. Work is being done for Chicago Dept. Subways and Superhighways by combination of S. A. Healy Co., Peter Kiewit Sons Co., and Morrison-Knudsen Co., Inc. which also has tunnel extension work in same area.



**HOLED THROUGH** last Jan. 16 and opened to traffic Feb. 29 is the C.&O. Ry's. newest tunnel—a 3,622-ft. bore, 22x18 ft., piercing Pine Mountain on a 14-mi. extension from Jenkins, Ky., to open up coal reserves in Virginia. Western Contracting Co., Sioux Falls, Iowa, installed 2,289,000 b.ft. of 12x12-in. timbers as permanent liner from portal to portal—with 900 ft. at the west end reinforced with a concrete and steel beam liner. Supervision was by L. T. Nuckols, chief engineer; G. R. Jenkins, district engineer; and D. W. Preston, resident engineer.



**U. S. FIRM TO BUILD \$9,000,000 SOUTH AMERICAN PROJECT.** H. K. Ferguson Co., Cleveland, Ohio, chosen to design and construct big alkali plant for government of Colombia in Bogota area. Discussing plans are (left to right) A. L. CAMPBELL and REGINALD C. SMITH of Ferguson organization; and JUAN DE DIOS CEBALLOS, director of Instituto de Fomento Industrial and DR. CARLOS GOMEZ, director of salt properties for Bank of Colombia. Program will continue until 1952.

**BIG PARKING AREA** at Shasta Dam is being built by Harms Bros. & Larsen Bros., Sacramento, Calif., for U. S. Bureau of Reclamation. Same firm also is building 14-mi. Shasta Dam-Summit City highway through some rugged country, as shown here.



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# BACK HOES AND



BACKHOES not only dig trenches, but also lay pipe on Saginaw-Midland 12 million dollar pipeline job in Michigan. Here is a 2-yd. Marion rig placing 48-in. concrete pipe in trench.

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## Casting plant . . .

ASSEMBLY line methods of casting 48-in. pipe for Saginaw-Midland water line include: Steel-cylinder cores (far background), central casting plant and steam bins for curing, prestressing and mortar coating in covered building, and storage yard (foreground).

Lock Joint Pipe Co. photo



WHEN TEN PIPE-LAYING CREWS tackle the prodigious job of laying 75 mi. of large concrete pipe diverse *modi operandi* can be expected. But just the opposite has been true on the \$12,000,000 Saginaw-Midland (Mich.) water line project. Nine crews laid pipe by the simple expedient of using a back hoe both to dig trench and install the 16-ft. sections of pipe. Single exception was a crew that trenched with back hoe, but laid pipe with a crane. All crews backfilled with bulldozers.

The entire project, designed to furnish both cities with abundant water from Lake Huron for at least 50 years, contains 48 mi. of 48-in.; 27 mi. of 36-in.; and nearly 3 mi. of 24-in.—all prestressed concrete pipe, sealed at joints with rubber gaskets to withstand a 300-ft. head of water.

The new water supply system is expected to be completed some time this summer. Briefly, it includes a 2-mi., 66-in. steel pipe intake with submerged timber crib, opposite Whitestone Point just above Saginaw Bay. A 70-mgd. pumping station at Whitestone Point feeding into 48 mi. of 48-in. concrete pipe terminating at a "Junction" pumping station of 70-mgd. ultimate capacity, and a 5-mgd. reinforced concrete reservoir.

Water from the Junction station will flow south through 14 mi. of 36-in. concrete pipe to the Saginaw filtration plant. A second 36-in. branch line runs 13 mi. due west from the Junction to a connection with the Dow Chemical Plant, followed by 3 mi. of 24-in. line to the Midland filtration plant. At Saginaw, the water will pass under the Saginaw



# BULLDOZERS BUILD BIG WATER LINE



BULLDOZERS are indispensable on big pipe job, for they shove pipe to within reach of backhoes for laying, then backfill trenches. This International TD18 equipped with Heil bulldozer is rolling one of big sections in place.

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river through 670 ft. of welded 36-in. steel pipe sunk in dredged trench below streambed.

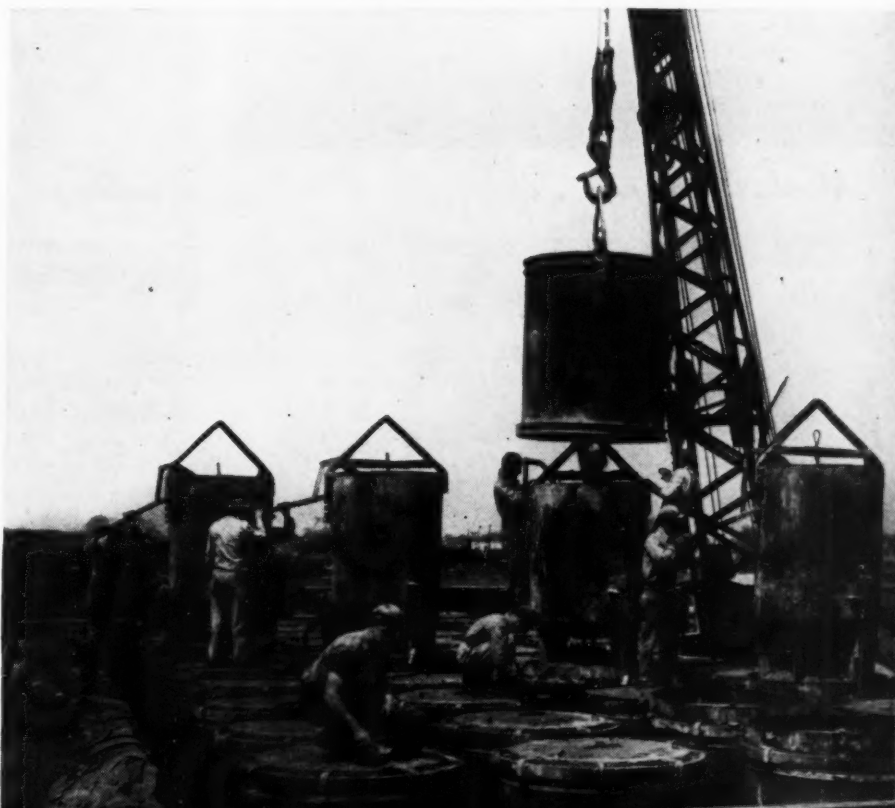
Teamwork and cooperation key-noted the entire operation, particularly between concrete pipe manufacturers and construction crews. On the other hand, there was plenty of friendly rivalry between individual pipe-laying crews to see who could hang up the best day's record.

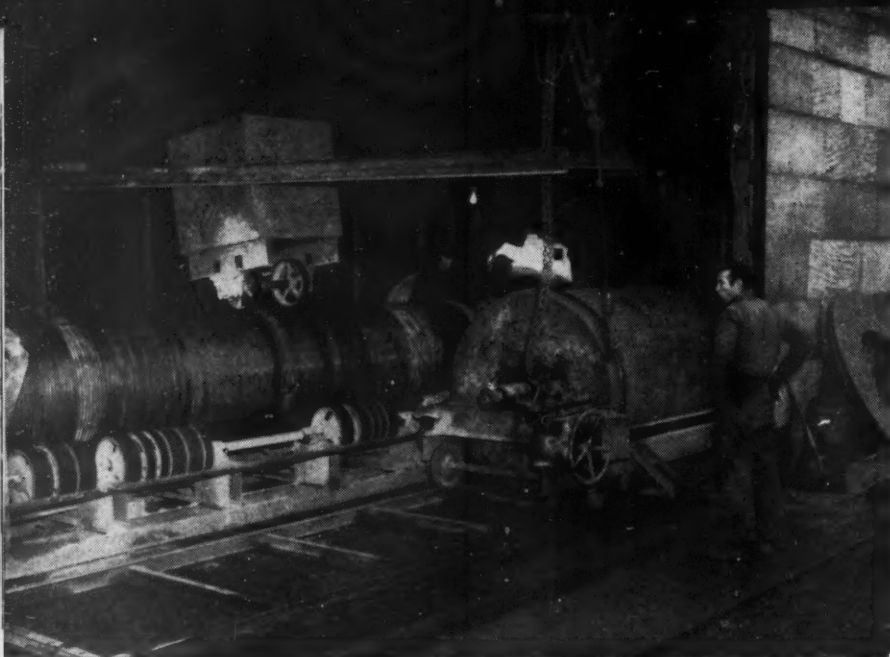
Top honors went to the crew that installed pipe with a crawler crane. This crew trenched, laid and backfilled sixty-one 16-ft. sections of 36-in. pipe in a 9-hr. day. Net result of the ten-crew attack on the job as a whole was that by Jan. 1 of this year, 210,000 ft. of 48-in. pipe had been laid, as well as 110,000 ft. of 36-in., and 2,800 ft. of 24-in.—a total of 61 mi. of water line laid during the 1947 construction season.

Getting a running start on the pipe-laying crews, Lock Joint Pipe Co., who is furnishing all 48-in. concrete pipe, set up a casting plant at Pinconning, Mich., in the fall of 1946. At the same time, Price Bros.

## *Casting concrete cores . . .*

Central-mixed concrete is hoisted by crane in special 2-yd. bottom-dump bucket and discharged into pouring buckets to cast concrete cores inside light-gage steel cylinders centered around casting molds. Electric cables lead to vibrators clamped to forms.





### *Prestressing . . .*

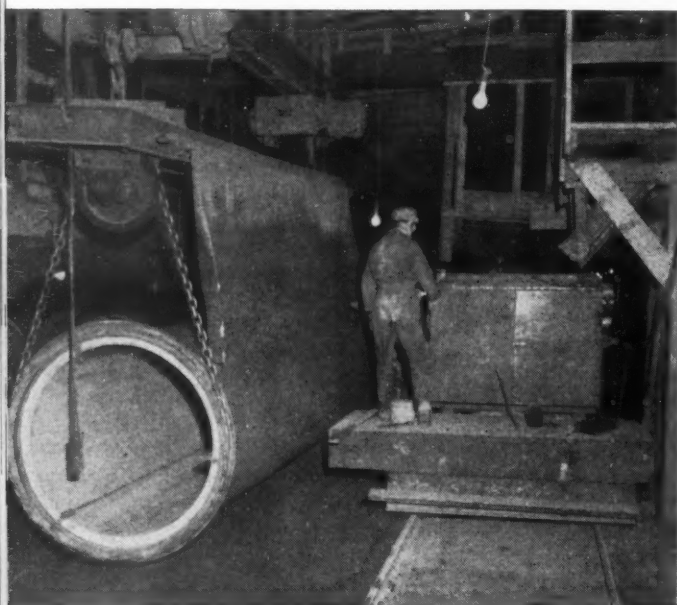
Steel-incased concrete cores are prestressed by wrapping with high-tensile wire under specified strain and spacing.

Co., of Dayton, Ohio, set up a plant at Bay City, Mich., to make the 36-in. pipe.

### *Casting Methods Similar*

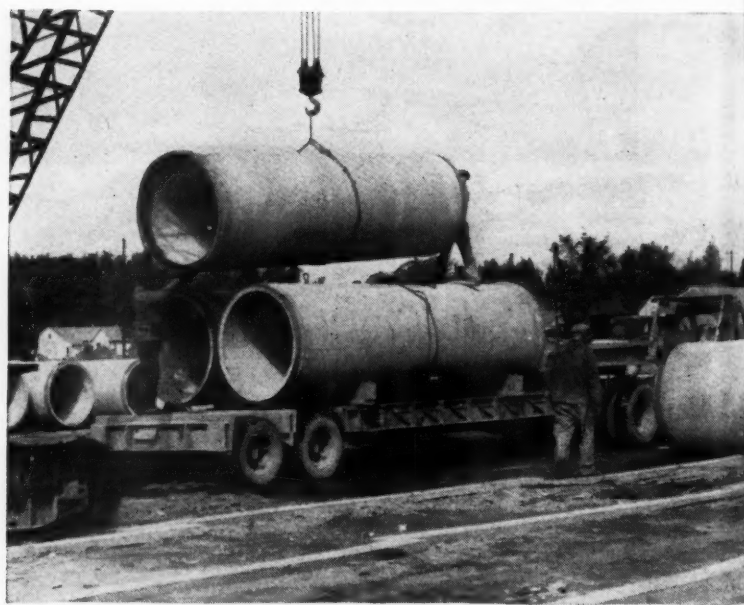
Casting methods of both plants were similar. Light-gage steel sheets were formed into cylinders of proper diameter and welded longitudinally. Galvanized steel joint rings were welded to each end, and cylinders lowered over inside casting molds, located in large steam bins.

Concrete from a central mixing plant then was poured between cylinder and mold to form concrete cores of specified thicknesses, and inside diameters of 48 and 36 in. After curing, cores were prestressed by wrapping with high-tensile wire and coated with  $\frac{3}{4}$  in. of stiff mortar.



### *Mortar coating . . .*

After prestressing,  $\frac{3}{4}$ -in. coating of dense mortar is brushed on to pipe while being rotated slowly.



### *Hauling . . .*

Crane unloads 6-ton 48-in. pipe sections from Freuhauf trailer. Smaller pipe are sometimes unloaded by timber skids and hand winches.



### *Pipe laying . . .*

Nine crews lay pipe with backhoes (left) which can shove sections home with 6-ton pull. One outfit prefers crane for laying pipe, pulls sections together with hand ratchets (right).





No true measure of the efficiency of operations can be gained by comparing daily records of the pipe-laying crews, since each was confronted by a wide range of problems, foremost of which were groundwater, rock and existing public utility services encountered in the cities.

However, first-hand accounts of some of the high points of the different crews' pipe-laying methods and equipment are of interest as they indicate the scope of work involved.

Starting at Whitestone Point, the north end of the line, Price Bros. Co., Dayton, Ohio, held a contract for installing 125,600 ft. of 48-in. pipe. Some 43,000 ft. of this section subsequently was sublet to Johnson-Greene Co. and Walter Toebe, of Ann Arbor, Mich.

Price Bros. put two crews at work under supervision of F. D. (Dud) Merrill and R. F. (Pat) Collins, both reporting to H. S. Knight, vice-president and manager of construction operations.

Merrill's crew totaled 34 men—15 trenching, laying pipe and backfilling; 14 wellpointing when groundwater was encountered; and 5 replacing highway pavement, driveways and fences. Its best day's work, using a 2-yd. Marion back hoe, Model 352, to trench and lay pipe, and a D7 Caterpillar with LeTourneau blade for backfilling, was 55 sections (880 ft.) of pipe installed in 10 hr.

#### Groundwater Slowed Work

Groundwater was a serious impediment to the progress of this crew. In fact, some 20,000 ft. of the first 42,000 ft. of pipe laid had to be wellpointed. Merrill used a



#### *Rubber-gasket seal . . .*

Burrs on annular groove in spigot-end joint rings are filed off (at left) to insure perfect fit of solid rubber sealing gasket (at right).



#### *Mortaring the joint . . .*

Exterior of joint is sealed by pouring thin mortar around pipe inside of tough paper "diaper." Interior of joint is hand-pointed with stiff mortar to reduce loss of head by friction.



Griffin Wellpoint system, with two 8-in., 1,500-gpm. pumps, and points spaced about 9 ft. apart.

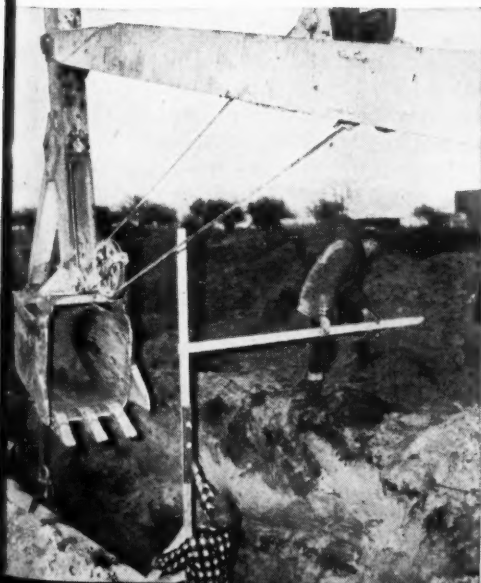
Superintendent Collins' crew totaled 30 men—14 laying pipe, 11 wellpointing and 5 restoring driveways, fences, etc. He also used a 2-yd. Marion back hoe Model 352, together with a D4 Caterpillar bulldozer, which at times was a little too light for the backfilling involved.

Best day's record of this crew was 25 sections (400 ft.) of pipe, but it encountered a multitude of problems. Nearly all of the first 20,000 ft. of line laid had to be wellpointed. Much of the line paralleled U. S. Highway 23 so closely that excavation had to be trucked away, to be returned later as backfilling.

About 5,000 ft. of line on Mer-

#### *Projecting line and grade . . .*

Both line and grade are projected into trench by carpenter's level and home-made tee (left), while grade in trench is checked with 16-ft. timber template (right).

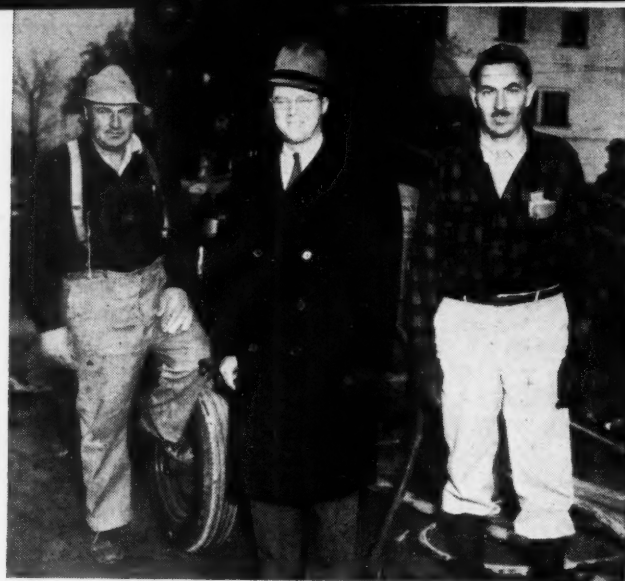






## Men on the job . . .

←  
SUPERVISING  
WORK are (left to  
right): V. R. KNEER,  
project engineer, Alvord, Burdick and  
Howson, consulting  
engineers; ALFRED  
ECKERT, manager,  
Saginaw - Midland  
water supply system;  
and L. G. (JACK)  
WILHELM, manager,  
Lock Joint Pipe Co.  
casting plant at Pin-  
conning.



IN PERSONAL CHARGE of Wells' pipe-laying contract is DON WELLS (center) flanked by one of his superintendents, IRVING ROOKER (at left), and H. J. MOORE, inspector for Alvord, Burdick and Howson (at right).



←  
AT END OF BUSY  
DAY, V. R. KNEER  
holds conference on  
convenient section  
of 24-in. pipe with  
one of his inspec-  
tors, ED. RICHARD-  
SON (right), and  
A. L. HRUSCHKA,  
superintendent for  
Bass Engineering and  
Construction Co.  
(center).

rill's job also was in hard rock excavation in close proximity to residential areas. Many trees along the line located on the state highway right-of-way had to be protected from damage during excavation and backfilling, and a multitude of private driveways had to be maintained and restored in kind.

Johnson-Greene Co. and Walter Toebe used only one crew on their 43,000 ft. of 48-in. line, under Al Cicchini, superintendent, and L. H. Brenner, chief engineer. Equipment included a 1½-yd. Northwest Model 6 back hoe, and a D6 Caterpillar tractor with LeTourneau blade. Best day's work was 55 sections (880 ft.) of pipe installed in 12 hr., using a 12-man crew. Very little wellpointing was necessary by this crew.

Charles F. Smith & Son, Dayton, Ohio, contractor on the remaining 128,900 ft. of 48-in. concrete pipe, put three pipe-laying crews on the job. Each crew, totaling 15 men,

used a 2-yd. back hoe for trenching and pipe laying. One was a P.&H. Model 855B, one was a Northwest No. 7, and the other a Marion, Model 352. Two crews backfilled with a D7 Caterpillar bulldozer, and one with a D4. In addition, an Allis-Chalmers HD10 tractor with pullgrader did general utility grading.

Best day's work of the three crews was 32, 30 and 17 sections of pipe installed, respectively, each crew working 10 hr. About 5,000 ft. of the first 90,000 ft. of pipe laid required wellpointing, using a Griffin Wellpoint system, with two 8-in., 1,500-gpm. pumps.

Adolph W. Smith, president of the company, served as general manager, assisted by Marlay Smith, chief engineer, and Stephen B. Smith, business manager. Roy P. Hess was general superintendent.

Contractor on the 71,600 ft. of 36-in. pipe from the Junction pumping station to Saginaw was L. W. Wells Construction Co., Sag-

inaw, with Don Wells in direct charge. Irving Rooker was superintendent and Walter Learned, engineer and assistant superintendent.

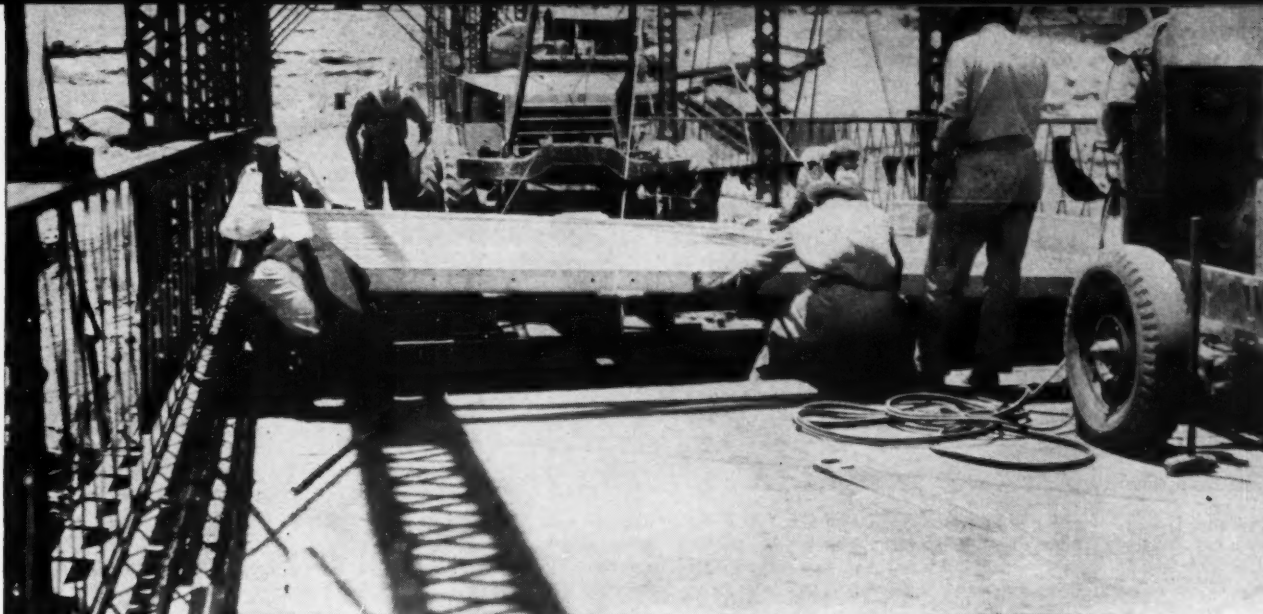
### Averaged Four Pipe Per Hour

Wells worked two crews—one of 20 men, which not only had a best day's work of 50 sections (800 ft. of pipe installed in 9 hr., but set the most consistent record of one 16-ft. length of pipe laid each 15 min. of working time during a 30-day period. This crew trenched and laid pipe with a 2-yd. P.&H. back hoe, Model 655, and back-filled with a D7 Caterpillar bulldozer. It also had a Schramm 105-cfm. compressor for operating paving breaker and power spade.

Wells' second crew showed less spectacular progress but most of its work, inside Saginaw city limits, encountered much interference from existing water, gas and sewer lines, and street and railroad crossings. This crew, totaling 35 men, averaged 12 pipe installed per day, despite these difficulties. Equipment included a 1½-yd. P.&H. back hoe, Model 655, an RD4 Caterpillar bulldozer, and an Ingersoll-Rand 105-cfm. compressor.

In setting the record-breaking best day's work of 61 sections (976 ft.) of 36-in. pipe installed in 9 hr., Al Hruschka, general superintendent for Bass Engineering & Construction Co., Birmingham, Mich., used a 23-man crew. Equipment included a 1¾-yd. Northwest No. 6 back hoe for trenching only, a Northwest No. 6 crane for pipe-laying, and an International

(Continued on page 165)



ALUMINUM PANEL measuring 15 ft. long and 16 ft. wide is lowered into position to replace worn timber floor of bridge in Arizona.

## Aluminum Panels Replace Bridge's Wooden Deck

LIGHT WEIGHT ALUMINUM PANELS have been installed by the Arizona State Highway Department to replace the worn-out timber floor of the Cameron bridge, a structure with a 660-ft. span, that carries U. S. Highway 69 across the Little Colorado River between Arizona and Utah. Replacement of the bridge floor re-

quired only 21 days, caused no serious interruption of heavy interstate traffic and resulted in a weight saving of 130,000 lb. or 200 lb. per lin. ft. of bridge roadway.

Advance planning eliminated construction costs often necessary in building a temporary utility bridge to bypass all traffic. Sections of the worn timber flooring were

removed and replaced by aluminum panels in 3-hr. intervals.

Originally constructed in 1912 with a timber floor, 90 ft. above the river, the bridge has a span of 660 ft., and is 16 ft. wide. A second timber floor was laid in 1937 without increasing the load limit. This floor, also subject to breakage and severe wear, was judged by Arizona highway engineers in 1946 to be incapable of withstanding the punishment and weight of constant truck traffic.

The present floor of the Cameron Bridge, constructed of  $\frac{3}{8}$ -in. gage aluminum panels 15 ft. long and 16 ft. wide, supported on steel stringers, was fabricated in the shops of the Allison Steel Manufacturing Co., Phoenix, Arizona. The curb sections used are surplus

*(Continued on page 166)*

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NEW BRIDGE FLOOR is in place and effects saving of 130,000 lb. in weight.







"SLED-LIFTER" is used by B. C. Electric Railway Co., at Victoria, B.C., to remove tracks on its Esquimalt route to make way for bus service. Rails, pried loose at one end, pass over curved steel bar set between steel runners and are yanked out with aid of tractor. Sled in picture is moving from right to left, levering up rail, dirt and spikes. Bulldozer digs up ties and roadway is then surfaced. Onlookers in picture are Esquimalt Reeve A. I. THOMAS, left, and Councillor ALEX SPEIRS.

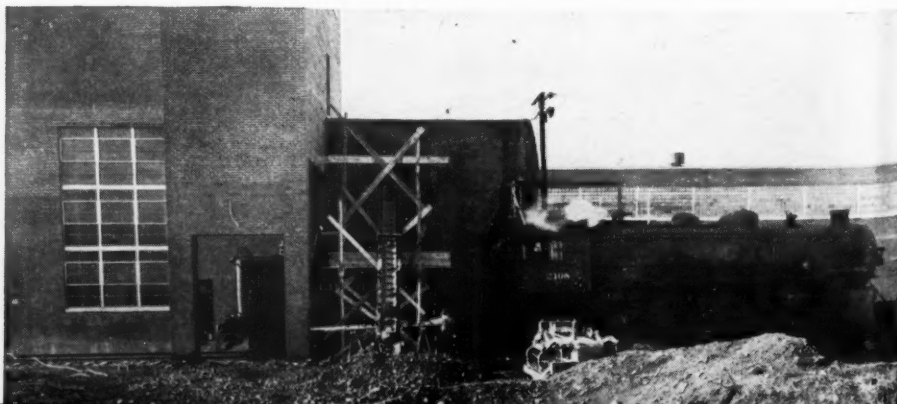
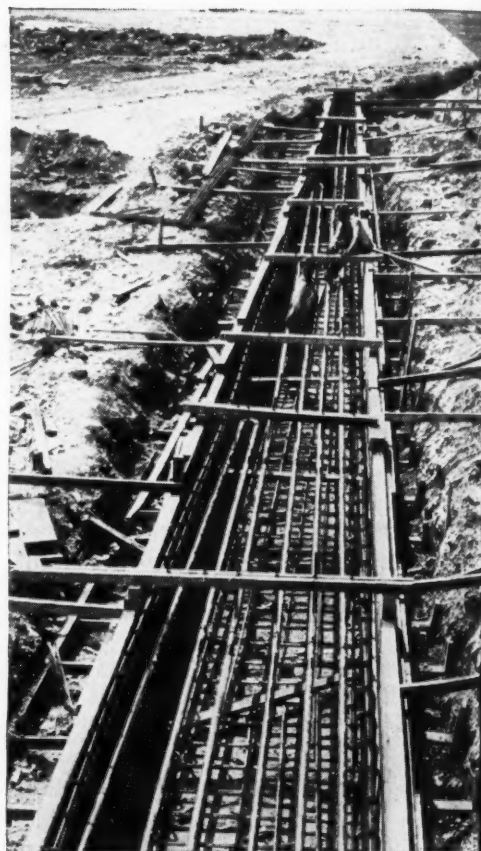
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→  
SNOW-MELTING SYSTEM AT AIRPORT is installed at entryway of large new hangar at Chicago for American Airlines. Wrought-iron pipes, embedded in pavement beneath doors of hangar, carry hot water, with anti-freeze added, to keep surface temperature above freezing level. A strip 7 ft. wide and 514 ft. long thus remains clear of snow and ice throughout the "Windy City's" winter months, so that aircraft may enter and leave hangar easily regardless of weather conditions. Snow-melting system, consisting of nearly 2 mi. of 2-in. and 2½-in. pipe, is "fed" hot water from a boiler in the hangar, the water returning to the boiler to be reheated and recirculated after coursing through the serpentine coils of system.

←  
DOES IT FIGURE? Every engineer in San Francisco asks this question when he first sees 318-ft. tubular steel tower built alongside Standard Oil Co. building as an elevator for roof alterations. With wood kicker braces against building and few light guys, tower does "figure" for skip loads up to 2,500 lb. Steelform Contracting Co. erected tower for Swinerton and Walberg, San Francisco general contractors.

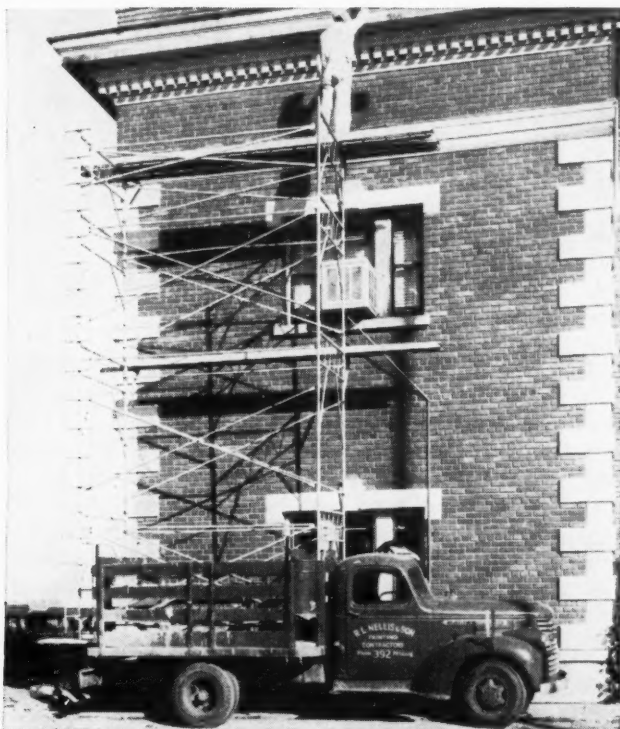
FUEL OIL CRISIS did not prevent Wigton-Abbott Corp., engineers and contractors, of Plainfield, N. J., from proceeding with winter construction of new gutta percha compound plant of L. A. Dreyfus Co. at Oak Tree, just outside of Plainfield, N. J., now nearing completion. Maintenance of construction schedules was made possible by use of Lehigh Valley steam locomotive which was hooked directly with steam lines in building to furnish 24-hr. working warmth for building mechanics. Supervision of locomotive by regular railroad fireman and an A. F. of L. building trades engineer enabled construction activities to continue without interruption during one of the most severe winters on record.







**TRUSSED RAFTERS**, prefabricated with Teco fittings, are set by hand at Barcraft housing project in Arlington, Va., being built by De Lashmuth Bros., Inc. Early erection of clear span trusses permits most of work to be done under cover. Trusses are built up of 2x4- and 2x6-in. members in overlapping faces.



**MOBILE SCAFFOLD** makes moves a cinch. R. L. Nellis & Son, painting contractors of Pittsburg, Calif., mount staging on GMC truck to reach cornices and trim of U. S. Bureau of Reclamation office building at Antioch, Calif. USBR Photo

**FOR DIGGING BASEMENTS** (below) at Central Homes development, Valley Stream, Long Island, New York, Anthony Farino & Sons Co., Jamaica, N. Y., made effective use of Bucyrus-Erie bulldozer mounted on an International TD-18 crawler tractor.



**ENTIRE FOUNDATION FORMS** are stripped by Bucyrus-Erie crane in one operation on a 1,400-unit housing project at Silver Springs, Md., by Fago Construction Corp., Buffalo. Foundation slabs are poured first, then five foundation wall units are poured every shift in five Irvington Form & Tank Corp. Atlas Speed Forms, fabricated into one-piece double-wall units, braced on inside and tied together across top. Bottom walls are held by tierods through wall. Harris Construction Co., Brooklyn, is general contractor.

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**SPLIT VITRIFIED CLAY CHANNEL PIPE** packed with insulating material prevents heat loss and corrosion of small underground steam lines on remodeling job at University of Akron (Ohio). Bottom half of split pipe is laid in trench, bell-and-spigot joints mortared, filled with insulation, and steam lines laid. Original top sections of each pipe are added, one at a time, horizontal and end joints mortared, and pipe backed with insulation from open end as job progresses.



# LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB



By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

## The Case of the Special or General Deposit



quently, dishonored.

"My letter made the deposit a special one to take up a particular note, and you had no right to apply it any other way," Tractor Conn maintained.

"Your instructions to 'credit my account' made it a general deposit, and the additional instructions to pay a particular note did not change it," was the bank's contention which the New York Courts upheld in 46 N. Y. 82.

## The Case of the Depositor and Trustee

Tractor Conn wished to withdraw his deposit from his bank, and the cashier proposed an interesting alternative.

"We don't want to pay out any more cash than necessary this month," the cashier suggested. "How would it be if we endorsed



over John Brown's note for \$5,000 that we hold under discount, and pay you the balance in cash?"

"Suits me," Conn agreed, accepted the note, the bank got in deep water, and a creditor attempted to garnishee Conn for the note.

"I took the note fair and square on the cashier's own terms, and what I have I'll hold tight," Tractor Conn maintained.

"The cashier had no power to dispose of the bank's assets in that way, and you hold the note as a trustee for the bank or its creditors," the creditor retorted, and the Iowa Supreme Court ruled in his favor in 39 N. W. 224.

## The Case of the Surrendered Draft

A certain owner had given Tractor Conn a draft. Conn discounted it with his bank, whereby the bank became a "holder in due course," and was entitled to collect from the owner, regardless of any defenses which the owner might have against Conn.

When the draft fell due it was dishonored, but the bank did not sue the owner. Instead of doing so, it surrendered and delivered the draft to Conn.

"I'll have to give you my note to cover this," Conn suggested.

The cashier hesitated.

"And I'll pin the old draft to the new note as collateral," Conn suggested. The bank acted on this proposal, and when the note fell due, the bank sued Conn's owner on the original draft.

"We're holders in due course," the bank contended, "for we took the draft before it was overdue."

"Yes, but when you surrendered the draft you ceased to be holders in due course, for when you took it the second time it was overdue," the owner retorted, and the United States Circuit Court of Appeals ruled in his favor in a case reported in 10 Fed. (2) 141.

"Upon the execution of the note the acceptance was marked paid, and disappeared from the books of the bank," the Circuit Court of Appeals announced.

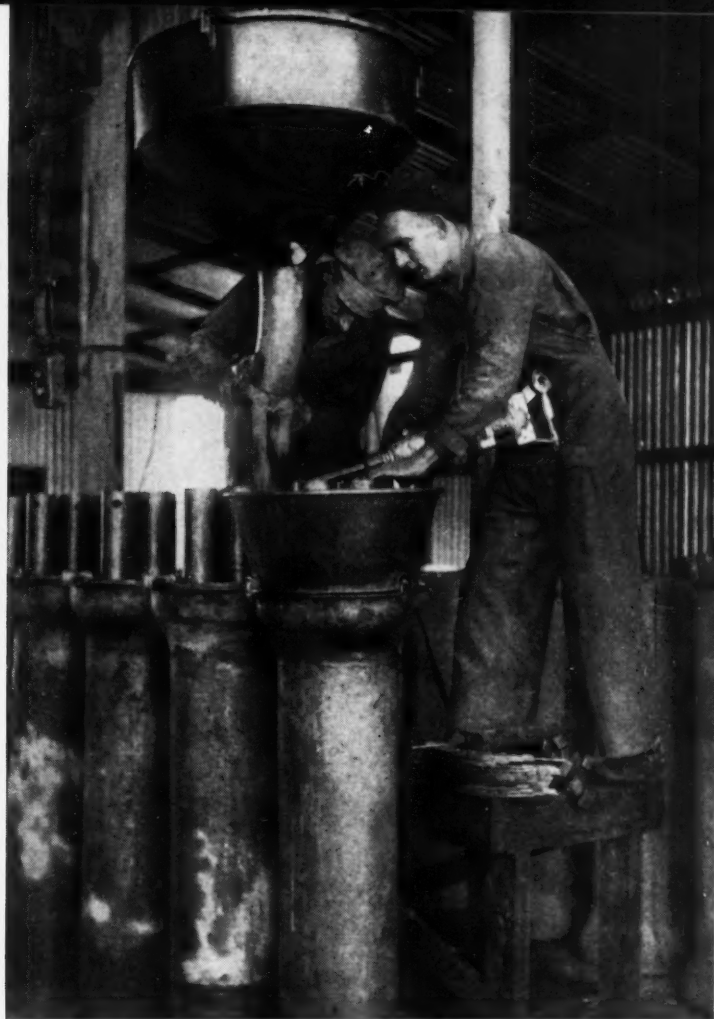


**More Legal Adventures of  
Tractor Conn Next Month**





**RUBBER SEAL RING** is slipped over grooved duct end. Ring tightly seals bell-and-spigot joint, yet permits slight curving of duct bank alignment.



**CONCRETE DUCTS** for underground telephone cables in Australia are cast in steel forms vibrated during pouring, as shown here, then cooked by steam blown through projecting core-form tubes.

## Aussies Cook Concrete For Circular Cable Ducts

*McGraw-Hill World News*

A NOVEL CASTING PROCESS involving air-entrained concrete, vibration and steam treatment has been developed by the Melbourne, Australia, firm of Rocla Ltd. for making circular, bell-and-spigot, multi-channel concrete ducts for underground telephone cables. In 8 hr. a crew of eight men produces 90 to 100 duct sections 4 ft. long and about 1 ft. dia. for a 130-mi. duct-bank job for the Commonwealth Postmaster General.

Rocla casts the ducts vertically in cylindrical steel molds of the

type used for casting spun concrete pipe. To form the cable raceways, four or six cores of ordinary steam tubing are positioned in the mold and held by an end plate at the top. The plate has openings for the tube ends and an inlet for filling the mold with concrete.

An air-entrained concrete mix, quite dry, is poured around the core tubes from an overhead skip, and is consolidated by electric vibrator held against the projecting tube ends. When the mold is filled, controlled - temperature steam is

blown into the tubes, gradually raising the temperature of the surrounding mix. This tends to expand the entrained air and increase the volume of the mix. Prevented from expanding in the closed mold, the concrete develops compression, resulting in a dense and homogeneous product.

After about 30 min., when the concrete has partly set, the cores are withdrawn by overhead hoist. The duct is then left in the outer mold for several hours before stripping. When stripped, the duct is ready for laying without further processing, as it already has one bell end and one grooved spigot end for a rubber-ring joint seal.

Claimed advantages of the circular ducts over the customary square or rectangular sections are: (1) Higher load-bearing capacity per given amount of material and cable-carrying capacity; (2) easier handling because they can be rolled; (3) better jointing as the bell and spigot with rubber ring gives a cheap and watertight seal.



# Why You Cannot Get Ahead As Your Father Did —

**T**HE UNITED STATES is being forced toward socialism by a tax revolution of far-reaching consequences.

We have not yet felt fully the deadly impact of this revolution because inflation and the postwar boom have delayed its effects.

But from now on, more and more people will feel its bite. Already it is the dominant element in our economic life. Already it is the major factor in our chances of keeping our jobs and of getting ahead.

Here are some pertinent facts on this tax revolution:

## **1. The tax load that our nation can safely carry has long since passed the danger point.**

Our capitalistic system is in real danger when taxes take more than 20 percent of our national income (or 20¢ out of every income dollar). Beyond that point there are not sufficient dollars left in private hands for capitalistic America to raise the capital required to keep its industry going. So we are right now being nudged further and further into socialism.

For today taxes take *twenty-five* percent of national income (or 25¢ out of every income dollar).

## **2. The tax revolution has undercut the incentives that help us to get ahead.**

The group whose incomes range from \$5000 up now turns over about one-half of its *total* income to federal, state, and local tax collectors. Before the war, this group gave the tax collectors one-third of its collective income.

In sharp contrast, the group of people with incomes under \$5000 pays the tax collectors 20% of its income for direct and hidden (mostly hidden)

taxes — against 18% before the war. This lower-bracket group needs immediate tax relief but I believe most sincerely that persons earning less than \$5,000 have a very vital reason for also supporting tax relief in the much more heavily hit upper brackets.

As you get ahead, you expect your taxes to go up. Taxes should be levied, in principle, according to ability to pay. But today tax rates rise so sharply that they virtually destroy all incentives to get ahead, to save, and to invest in new and untried enterprises that open up new jobs. *The progressive tax idea now carried to punitive extremes has become a destructive tax revolution.*

Today the U.S., envied by all the world for the wealth it has won under capitalistic incentives, has cut its incentives below those offered by that state whose police methods strike terror into the hearts of all workers.

*Soviet Russia rewards successful managers, writers, and scientists better relatively than we do under our present tax system.*

*A revolution that sweeps away incentives will quickly sweep away our free enterprise economy. The only substitute ever found for free incentives is the whip-and-lash compulsion of the police state. And no police state has ever been able to match the production of a free people with a free economy that gives adequate rewards to individual producers.*

## **3. The tax revolution hits squarely the average American's chances of keeping a job and of getting ahead.**

If you make less than \$5000 a year you may well ask why you should worry about a tax revolution that seems directed at the comparatively small group, about 10% of American families, who make \$5000 a year or more.

The answer, it seems to me, is that "risk capital," the money that makes new jobs when invested in growing companies or in new businesses, must come largely from the people making more than \$5000 a year. The others usually cannot afford to take any risks with their savings.

It was the savings of this 10% group that made possible the huge growth in American industry and American jobs and our progress in raising American living standards in the years before 1930.

Now the government is taking so much from the 10% group in taxes that they cannot afford to risk any savings they manage to accumulate. Most of their savings now go to insurance companies and savings banks which are barred by law from making risky investments or investments even in seasoned common stocks.

The flow of risk-capital from this 10% group can only be renewed by reducing their taxes. The result will benefit everyone over the difficult years to come by providing more and steadier employment for all.

The cost of the presently proposed reduction, less than 1% of the national income, can well come out of current revenue surplus. It will be repaid many-fold by the new enterprises it will stimulate.

#### **4. Jobs will be lost if risk-capital does not increase.**

Unless the flow of risk-capital into business can be doubled and trebled in the next few years, business investment in job-making new plants and equipment will drop sharply. The McGraw-Hill survey of prospective capital expenditures, reported in the previous editorial in this series, made that quite clear.

When such a drop in business investment has come in the past, it has brought with it a general slump in business — and unemployment.

As we work through the enormous demand for goods of all kinds built up during the war years, and as the war-accumulated savings of businesses and individuals are spent, it will be harder and harder to keep production and employment at today's high levels.

*Then—at the very time that we shall need all our drive to maintain prosperity—we shall be hit by the full impact of the tax revolution.*

#### **5. Compounding these troubles is a tax system as out-of-date as an oxcart.**

Twenty years ago, when taxes took only twelve cents out of the national income dollar, our rattle-trap tax system was little more than a nuisance. Today, when it takes twice as big a bite, its double-taxing of the earnings of investors, its discriminatory excises, and the overlapping of federal, state, and local levies are a fatal handicap. A new system, a fair system, a rewarding system, is a necessity if American initiative and enterprise are to have a fair chance.

*What Congress does now about federal taxes will bear crucially on our ability to sustain prosperity.*

By demanding economy in government and by re-designing the tax system to stimulate initiative and risk-taking, Congress can multiply many times our chances of maintaining full employment and of raising living standards.

By allowing people to save more and by renewing the incentive to risk capital in new enterprises, Congress can actually insure a bigger tax return in the years ahead. More business will result — and pay more taxes.

That is the only way that a free people with a free economy can carry the tax load.

That is the best way that our government can improve our chances of keeping our jobs and of getting ahead. I suggest that you discuss these vital matters with your chosen representatives in Congress, in your state government, in your local community.



President, McGraw-Hill Publishing Company, Inc.

# Present and Accounted For...A PAGE OF PERSONALITIES



CONSTRUCTIONDISING AWARD of Associated General Contractors of America is presented at association's annual convention in Dallas, Texas to ROY A. MACGREGOR, (left) executive secretary of Constructors Association of Western Pennsylvania, as DWIGHT WINKELMAN, A.G.C. president, examines testimonial volume containing evidence of effective public relations and accident prevention work.

→ COL. KENNETH D. NICHOLS, Corps of Engineers, Department of the Army, has been named by Secretary of Defense James Forrestal head of the Armed Forces Special Weapons Project, succeeding Lt. Gen. Leslie R. Groves, retired. A former engineer for the Metropolitan District Atomic Bomb Project, Col. Nichols has recently been on duty at the U. S. Military Academy.

Press Association Photo



→ AFTER NINE YEARS on the editorial staffs of Construction Methods and Engineering News-Record, the last three as regional editor in Washington, ARCHIE N. CARTER has been appointed head of the Highway Division, Associated General Contractors of America, at Washington. He replaces Harry J. Kirk in this position, who has been assigned a new job as head of A.G.C. research activities. Prior to his editorial service, Carter at one time was a civilian engineer with the U. S. Corps of Engineers at Rock Island, Ill., and also spent two years in Liberia building roads for Firestone Rubber Co.

← NEW PRESIDENT of Constructors Association of Western Pennsylvania, elected at annual meeting Feb. 19, in Pittsburgh, is DAN DINARDO, formerly vice-president, treasurer and chairman of association's accident Prevention Committee.



Page 116—CONSTRUCTION METHODS—April, 1948

ASSOCIATED EQUIPMENT DISTRIBUTORS at their 29th annual meeting in Chicago elected new officers as follows: (front row, left to right) F. G. KNIGHT, executive secretary; W. W. BUCHER, executive vice-president; A. F. GARLINGHOUSE, president; C. F. HALLADAY, vice president; (rear row) ELDON M. FARNUM, treasurer; R. L. ARNOLD and V. L. SHERIDAN, vice-presidents.





NORTH • EAST • SOUTH • WEST • IT'S SCHRAMM!

## CHOOSE . . . as others have — THE MODEL THAT BEST FITS YOUR NEEDS!



There's a Schramm Air Compressor, size and model, to meet your specific needs!

Below are listed nine of the many Schramm models, portables ranging from 20 to 420 cu. ft. of actual air, the stationary ranging from 2 to 600 cu. ft. displacement.

On all models performance records are evidence of their high quality. You will find the name Schramm written on every important page in compressor history.

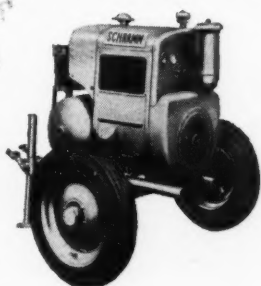
Features you get in Schramm are: 100%

water cooled, assuring ideal performance summer and winter; mechanical intake valve, forced feed lubrication, and electric-starter starting. All Schramms are compact, lightweight, easy to operate.

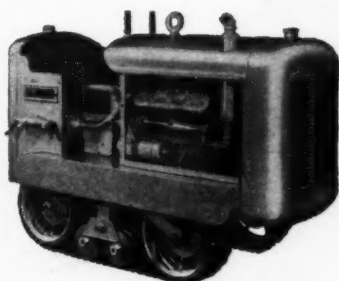
We invite you to write today for fully illustrated catalog describing in detail each of the Schramm Air Compressors shown here . . . plus a wide range of other models. We feel the Schramm story is a good one, and offers you a sure way to get your many compressed air jobs done quickly, efficiently, and economically.

# SCHRAMM INC.

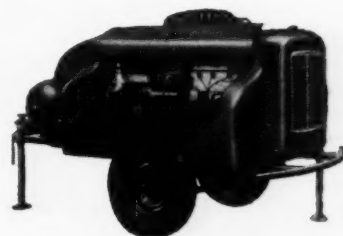
THE COMPRESSOR PEOPLE • WEST CHESTER • PENNSYLVANIA



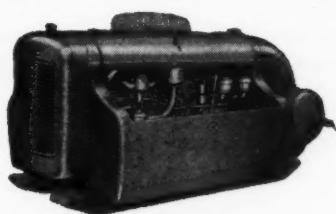
20/35 Model Compressor



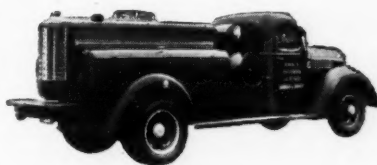
No. 60 Self-Propelled Compressor



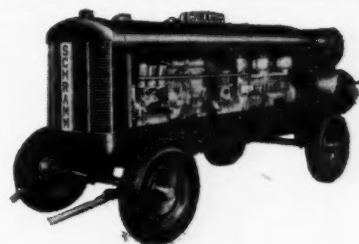
Two-Wheel Trailer Mounting with Tool Boxes



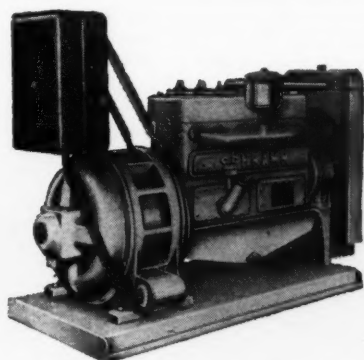
Slidged for Truck Mounting



Truck Mounted



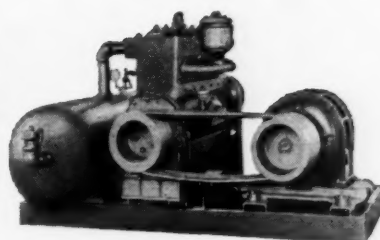
Diesel Engine Drive



Built-in Motor Drive with Cooling Unit and Starter



"V" Belt on Flat Pulley Drive



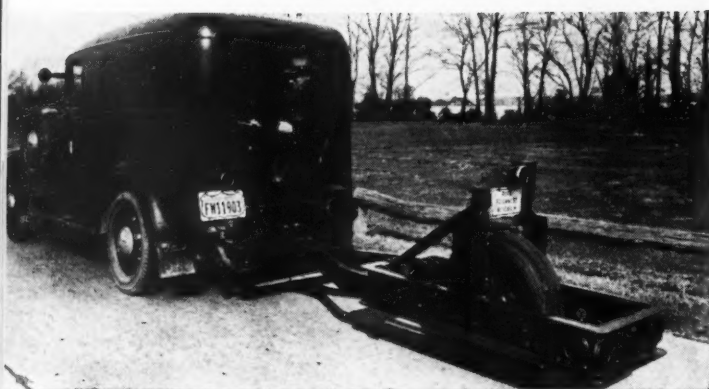
"V" Belt Drive with Air Receiver

# JOB

## oddities



LENGTH OF 2,000 FT. is unusual feature of this Goodrich belt conveyor handling aggregate for concrete at Fort Gibson Dam on Grand River in Oklahoma. Five-ply belt 30 in. wide operates at speed of 308 ft. per min. at 17-deg. angle.



ROAD SURFACE ROUGHNESS is measured and recorded by this single-wheel trailer apparatus developed in physical research laboratory of Public Roads Administration. Towed along highway by truck, "roughometer" converts up and down motion caused by bumps into linear units of roughness.

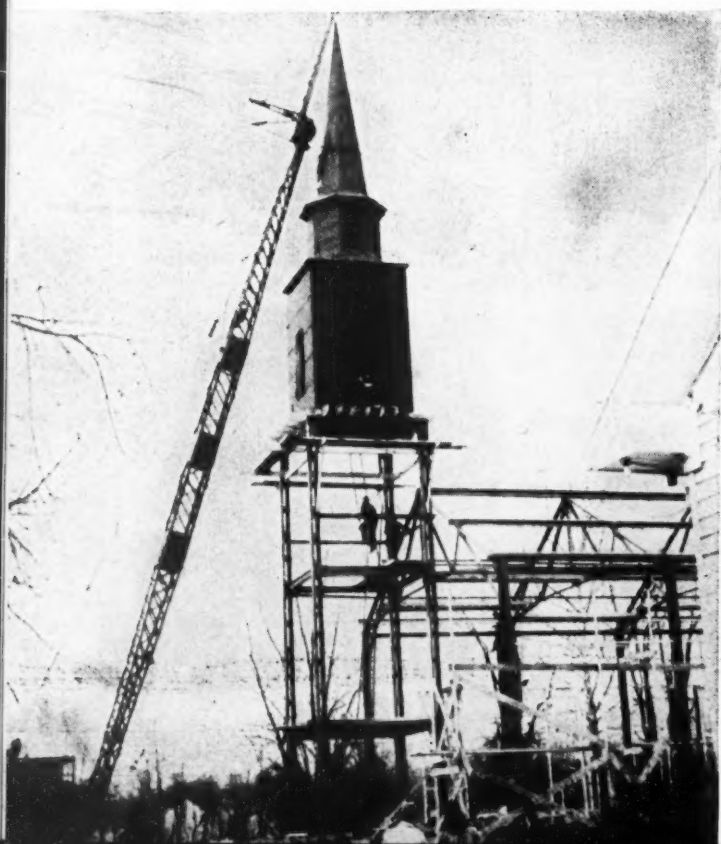
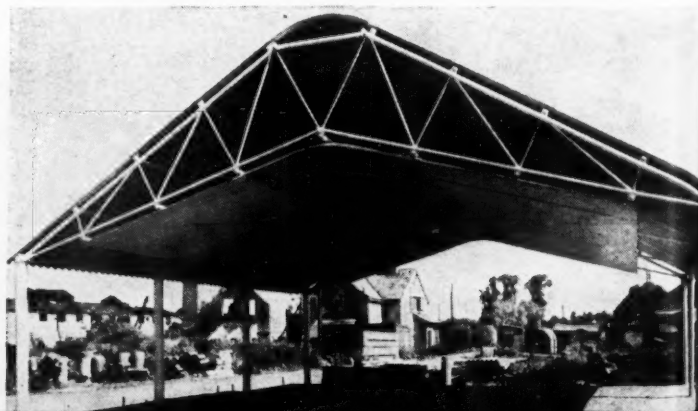
Page 118—CONSTRUCTION METHODS—April, 1948



← **CHURCHLESS STEEPLE** is example of reversal of usual procedure in church building. Because of delays in delivery of material for main structure of church in Louisville, Ky., contractor first built steeple and hoisted it with crane into place on steel framework of new edifice. Steeple is 40 ft. high and 85 ft. above ground floor level. Press Association Photo

**HALF-BURIED OWLS** aren't latest scheme for centerline markers, despite appearance of this Catseye reflecting roadstud paved into street to reflect headlights and delineate center stripe under all weather conditions. However, like owl, unit's eyes are self-cleaning. Lenses are pushed down when vehicles ride over resilient rubber housing and are cleaned against stationary wiper during depression and rebound.

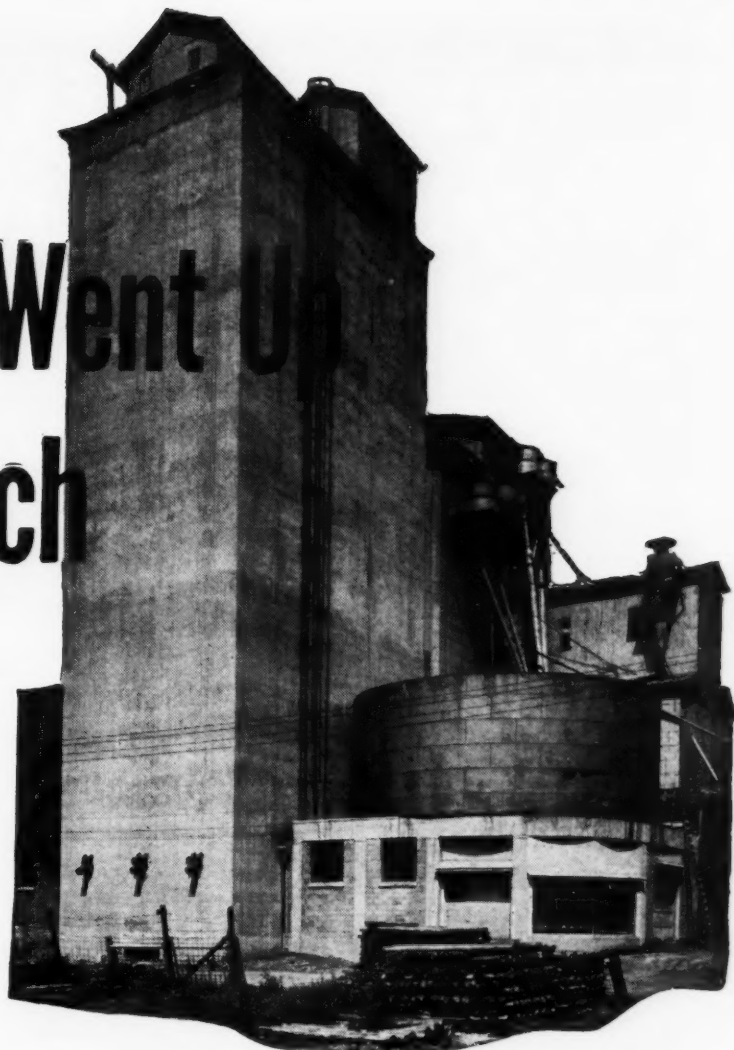
**TROPICAL ROOF** (below) for British colonial development in East and Central Africa is designed for easy transport and erection by British firms making temporary prefabricated houses. British Combine Photo



# The Elevator Went Up Without a Hitch

*on this Slip-Form  
construction job*

**... with  
Duraplastic**



Duraplastic air-entraining cement used exclusively on this grain elevator of Delphos Grain & Milling Co., Delphos, Ohio. Engineer and Architect, R. C. Reese, Toledo, Ohio; Contractor, Green and Sawyer Co., Lima, Ohio.

**Another grain elevator** built fast and clean with Atlas Duraplastic air-entraining cement. Further proof that the greater workability of Duraplastic makes it ideal for slip-form work.

Because it makes a more plastic, more uniform, more cohesive mix, Duraplastic saves time and work in placing and finishing. Requiring less water for a given slump, Duraplastic minimizes segregation and bleeding.

Duraplastic works as well for paving, structural, and mass concrete as it does for slip-form construction. No unusual changes in procedure

are required. A denser, more durable concrete results.

Duraplastic complies with ASTM and Federal specifications... sells at the same price as regular cement... makes better concrete at no extra cost. Send for further information. Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

**OFFICES:** Albany, Birmingham, Boston, Chicago, Cleveland, Dayton, Des Moines, Duluth, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

CM-D-5

## ATLAS DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

**MAKES BETTER CONCRETE AT NO EXTRA COST**



"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—ABC Network



# CONSTRUCTION EQUIPMENT NEWS

## APRIL 1948 REVIEW of Construction Machinery and Materials

(For further information about these products, use coupon below)



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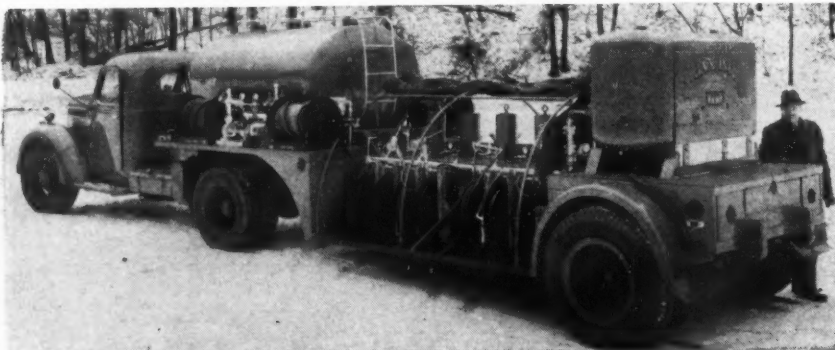
**PAVING FINISHER**—Diagonal screed finishing machine, called a mass-production labor saver, is equipped with transverse front screed and pivoted rear screed which operator can swing diagonally in either direction to operate at whatever angle best suits work. Gradual adjustments of screed angle are made without stopping as machine

approaches and leaves super-elevated curves. Accuracy of surface results from fact that rear screed, operating diagonally to front one, always meets material at different point, removing high spots with slicing action and troweling material into low spots.—**The Jaeger Machine Co., Columbus 16, Ohio.**

240

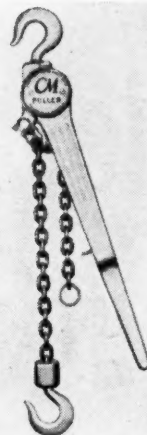
**PORTABLE SERVICE STATION**—One-stop servicing of mechanized construction equipment is furnished in field by Kilroy trailer that dispenses fuel oil, gasoline, water or anti-freeze, air and five oils or greases from battery of nine hose reels on each side. Integral tanks

hold 700 gal. of fuel, 200 gal. of lubricants, 60 gal. of water. All operations are air-controlled and powered by 60-ft. compressor on rear. Operating crew of four can simultaneously service two pieces of equipment in 15 min. Hauled by truck-tractor, mobile 21-ft. unit is 8 ft. 3 in. high, less



than 96 in. wide, has gross vehicle weight of 18,000 lb.—**Jax, Inc., 4925 Friendship Ave., Pittsburgh, Pa.**

241



**IMPROVED PULLER**—New  $\frac{3}{4}$ -ton model weighing 13 lb. lifts and pulls from any angle. Number of teeth in brake and lever ratchets has been increased to permit accurate spotting of loads. Up and down button has been replaced by trigger on handle to permit more convenient one-hand

operation. Oil-impregnated bronze bushings are used at all rotating points. Gears are packed with grease and sealed in dust-proof inclosure. New pullers are available in  $\frac{3}{4}$ -,  $1\frac{1}{2}$ -, 3- and 6-ton capacities.—**Chisholm-Moore Hoist Corp., Tonawanda, N. Y.**

242

**SUMP PUMP**—Lightweight VP-4 air-driven closed-impeller pump is designed to overcome one of most common causes of pump failure—breaking of pump shaft seal because of water pressure. Oil seal is subjected only to static pressure from depth of immersion when pump is not in operation, and when pump operates water cannot reach oil seal on vane-type air motor. Built-in oiler lubricates all moving parts of pump—one quart of oil for 24 hr. normal operation.—**Gardner-Denver Co., Quincy, Ill.**

If you want more information on new products or publications, mark identifying number (given after address of firm) on the coupon below and mail. No cost or obligation to you.

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"Headquarters to Section Foreman:  
When you've finished there, equip-  
ment will be waiting on  
the highway 54 job."



## ***FAST TALK***

saves money as it **SPEEDS** ROAD  
CONSTRUCTION AND MAINTENANCE

You cut down waste motion and "dead" mileage when your section foremen, supervisors and main office are in direct, instant contact with each other for fast action on every phase of your operation. Motorola Radiotelephone gives your main office constant control over every job and enables you to keep constantly informed of work progress, accidents or needed equipment. Motorola Radiotelephone speeds work within a single road crew when it is spread out over miles of highway. So much does Motorola Radiotelephone add to the efficiency of industrial operations that many users report that in savings alone it has paid for itself in one month of operation.

Motorola Radiotelephone has been proved dependable in thousands of installations. It is the four-to-one favorite of police departments across the country. You can prove to yourself the superiority of Motorola Radiotelephone by comparing it with any other communications equipment at any price.

GET THE COMPLETE COST-SAVING STORY. A Motorola Field Engineer will be glad to call to discuss your specific communications problem. No obligation. WRITE TODAY!

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### *Motorola* Guarantees Full Channel Utilization Through "Precision Selectivity"

"PRECISION SELECTIVITY" requires no reduction of channel width. Motorola guarantees utilization of the full channel width authorized by the Federal Communications Commission with consequent maximum noise reduction.

"PRECISION SELECTIVITY" in the receiver provides full insurance against interference to your signals from nearby central stations. Exact frequency stability with Motorola contherm "Precision" crystal results in better quieting and a higher signal-to-noise ratio. Tolerances throughout far exceed those required by the FCC.

"PRECISION SELECTIVITY" in the transmitter gives better frequency stability, allows full suppression of spurious output and permits full utilization of valuable channel space.

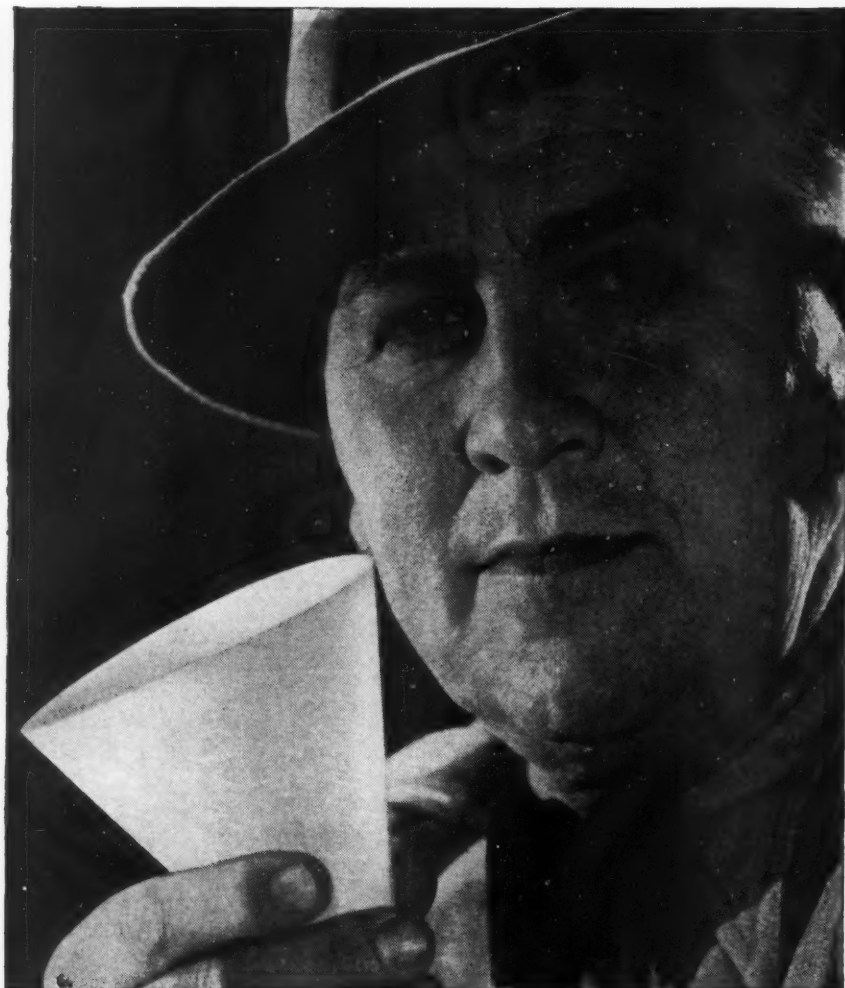
Remember — when you consider the installation of  
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**"Our labor relations are smoother  
since we use  
*VORTEX CUPS*"**



**NEW DIXIE PORTABLE  
WATER CARRIER**

Well built for hard use in the field. Insulation keeps 4 gals. cool for hours. Write for descriptive folder. Dixie Cup Company, Easton, Pa.

Take it from 'supers' who have tried it out, there's less grumbling . . . fewer complaints . . . more time saved . . . with Vortex\* or Dixie\* Cups on the job alongside the men. By placing a cool, clean drink within easy reach, you provide an extra health safeguard—besides showing a spirit of cooperation that pays off.

\*"Dixie"  
is a registered  
trade mark of the  
Dixie Cup Company



**243**

**BUILDING INSULATION**—Insulation that reflects radiant heat besides blocking heat transfer by conduction and convection is announced. Cellulite-Silvercote insulation's two non-corroding reflective metallic membranes completely inclose fluffy fiber blanket, whose millions of dead air spaces provide effective barrier to heat transfer. Reflective surfaces will not oxidize or corrode and are not subject to electrolysis.—**The Gilman Bros. Co., Gilman, Conn.**

**244**

**TRUCK LOADER**—Truck-loading device is one-man operated from truck cab, needs no power takeoff, loads 3 yd. of stockpiled material in 3 min. with 1/4-yd. bucket. Device consists of special hitch on rear of truck, and bucket on levered arms fastened to metal pads resting on ground. Hitch-equipped truck backs over pads into loader (until rear wheels are behind pads), hitch is en-

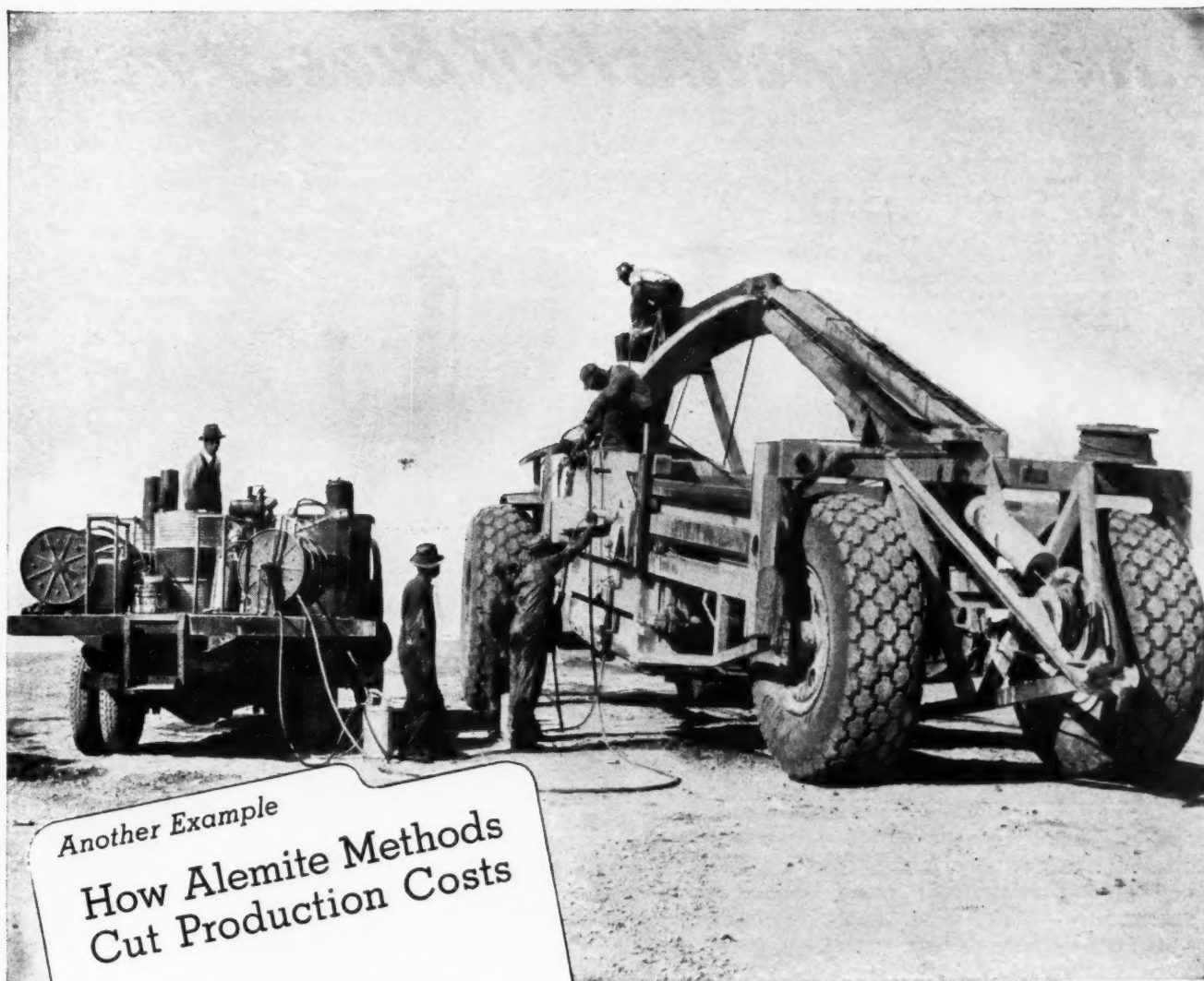


gaged by cab control, and truck backs bucket into stockpile. Truck then moves forward onto and ahead of pads, raising and dumping bucket by lever action. Without unhitching, truck can maneuver unit into any position for loading or, after 3-min. preparation, move it from job to job. Regular 1/4-yd. bucket and 3/4-yd. snow bucket are interchangeable in 10 min.—**Shoveller Corp., 36 Warren Ave., Portland 5, Me.**

**245**

**REVOLVING SCOOP**—Full-revolving, cable-crowding scoop is designed to clean corners, load gravel, coal, earth, aggregate or snow. Operates from all angles. Available as standard attachment for Model E and Model J Quick-Way truck shovels. Scoop is available in capacities of 3/8 and 5/8 cu. yd. Model E has dumping radius of 6 ft. 11 in. to 16 ft. 7 in., dumping height of 3 ft. 7 in. to 16 ft. 6 in. and digging radius of 14 ft. 4 in. to 19 ft. 5 in. Model J ranges are: dumping radius, 6 ft. 1 in. to 15 ft. 4 in.; dumping height, 2 ft. 9 in. to 14 ft. 5 in.; digging radius, 12 ft. 6 in. to 17 ft. 6 in. Scoop is interchangeable with other attachments.—**Quick-Way Truck Shovel Co., Denver 5, Colo.**

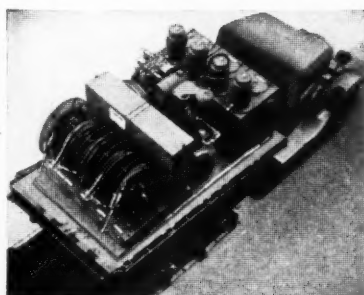




## Cuts "Time-out" for Lubrication Up to 35.3%

Adds More Productive Time to Machines

Through Portable Power Lubrication



### You're Looking at a Modern Compact, Speedy Lubrication Unit

Actually, it's a super-service unit mounted on a light truck. Alemite Portable Service Stations come in various combinations. High and low pressure grease pumps, oil pumps and hose reels, plus all necessary connections and accessories. A five minute conference with an Alemite Representative may well give you the key to lower production costs through modern methods of handling and applying lubricants. Write to Alemite, 1840 Diversey Parkway, Chicago 14, Illinois.

Illustrated above is an Alemite Portable Service Station bringing power lubrication to a large earth-mover out on the job. Air-operated pumps deliver oil and grease direct from "barrel to bearing."

Important too, is the fact that this modern Alemite Method cuts "time-out" for lubrication as much as 35.3%—which adds up to more pay yardage from each piece of equipment on the job. The result is lower contract costs.

It's just one of many Alemite Methods now saving time, money and machines in every industry. And the Alemite Representative can quickly prove that his simplification of lubrication procedures can definitely reduce the cost of maintenance in any construction company.

He can show you case after case where a time study analysis proved that Alemite Methods eliminate costly, time-consuming handling of greases and oils. His methods completely mechanize lubrication from "barrel to bearing"... save grease... keep dirt and moisture out of lubricants... reduce bearing failures.

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# ALEMITE



MODERN LUBRICATION METHODS  
THAT CUT PRODUCTION COSTS

# ...AND THE CHOICE WAS 100% BLUE BRUTES!

Two Blue Brute Portable Compressors powering four Blue Brute UMW-40 Wagon Drills, breaking ground for the Franklin D. Roosevelt Veterans' Hospital near Peekskill, N. Y. Part of the All-Blue-Brute equipment used for rock excavation by the Mt. Vernon Contracting Corporation of Mt. Vernon, N. Y., sub-contracting for Merritt, Chapman & Scott of New York City and Fred J. Brotherton of Hackensack, N. J.



When a big-time contractor goes all-out for one make of equipment, it's time to sit up and take notice! That's what happened last summer, when the Mt. Vernon Contracting Corporation was awarded the sub-contract of excavating, grading and remodeling the 383-acre site of the huge, \$22,400,000 Franklin D. Roosevelt Veterans' Hospital at Cruger's Park, N. Y.

For rock excavation, the Mt. Vernon Corporation selected Worthington Blue Brutes—100%—nine 500' and two 315' Blue Brute Portable Compressors, fourteen Blue Brute Wagon Drills and eighteen Blue Brute Hand-Held Rock Drills. Equipment-

wise from long experience, Mt. Vernon executives knew they could count on Blue Brutes for top performance *all day — every day*—under the toughest going.

On your own jobs, hook up a Blue Brute Compressor with Blue Brute Air Tools and watch a hard-hitting combination start things moving—fast! You'll get new ideas about speed, efficiency and economy—and about the Blue Brute teamwork that gives you a comfortable feeling on every bid.

Your nearby Blue Brute Distributor is ready with complete details about features, capacities, performances, etc. Or write to us direct.

## BUY BLUE BRUTES

H8-7

### KNOW YOUR

## BLUE BRUTES

Your Blue Brute Distributor will be glad to show you how Worthington-Ransome construction equipment will put your jobs on a profitable basis.

#### RANSOME EQUIPMENT

Pavers, Portable and Stationary Mixers, Truck Mixers, and Accessories.

#### WORTHINGTON EQUIPMENT

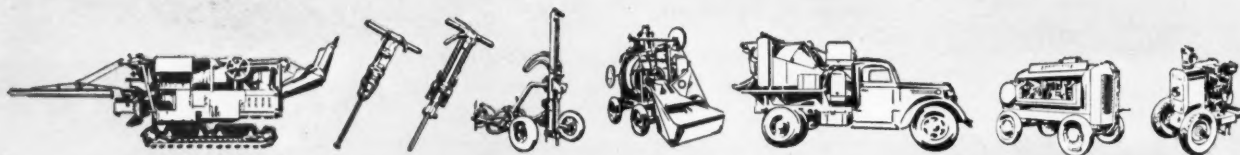
Gasoline and Diesel Driven Portable Compressors, Rock Drills, Air Tools, Self-Priming Centrifugal Pumps and Accessories.

### WORTHINGTON



Worthington Pump and Machinery Corporation, Worthington-Ransome Construction Equipment Division, Holyoke, Mass.

Distributors in all principal cities



IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

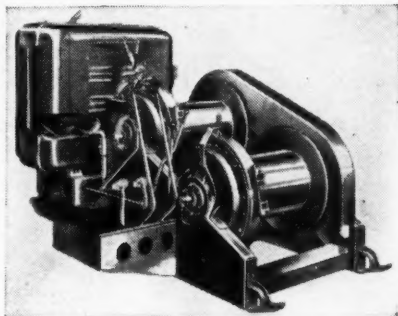
(For more information on new products, use coupon, p. 120.)

## 246

**LOAD BUGGY**—Payloader Buggy is gasoline engine-driven four-wheel, pneumatic-tired hauling unit with hydraulically-dumped 2-cu.yd. body. Low-slung and compact, with short wheelbase and rear wheel steering for operation in congested areas, buggy has large wheels with ground-gripping pneumatic tires to permit travel on paved or unpaved surfaces. Unit has two forward and two reverse speeds, hydraulic brakes, and can travel at comparatively high speeds with complete safety.—**The Frank G. Hough Co., 706 Sunnyside Ave., Libertyville, Ill.**

## 247

**HYDRO-HOISTS**—New line of 2-speed, hydraulically controlled hoists. Two-speed transmissions and hydraulic finger-tip control. Offered in two models the Utility, with one or two drums and of 25 to 40 hp., and the Erectors model of 60- to 100-hp.



with one, two or three drums. Automotive-type transmissions driving drums offer operator instant choice of low gear for slow line speeds in heavy hoisting or high gear for high line speeds when handling light loads. Hydraulic control of clutching or braking is similar to that on large cranes and power shovels.—**Jaeger Machine Co., Columbus 16, Ohio.**

## 248

**HEAVY-DUTY ENGINES**—Six new solid injection, compression ignition, 4-cycle diesels and two high-compression gasoline engines have been added to Hercules high-speed, heavy-duty lines. Included are 600-lb., 4-cylinder diesel developing 46½ to 57 hp. at 3,000 rpm; and 750-lb., 6-cylinder model with 93 hp. at 3,000 rpm. Three others are horizontal pancake diesels developing 99, 142 and 260 hp. and weighing 900, 1,300 and 2,600 lb. Also added is 8-cylinder V-type 4,200-lb. diesel developing 340 to 400 hp. at 2,100 rpm., and 500-hp. supercharged model. Two new 6-cylinder gasoline engines develop 160 and 180 hp. at 2,600 rpm.; weight 1,345 and 1,470 lb.—**Hercules Motors Corp., Canton 2, Ohio.**

# PERFECTION

**USED THE  
WORLD OVER**

**IS THE NAME  
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WHEN YOU WANT**

**BODIES  
AND  
HOISTS  
FOR**

**ULTRA-DUTY  
SERVICE**

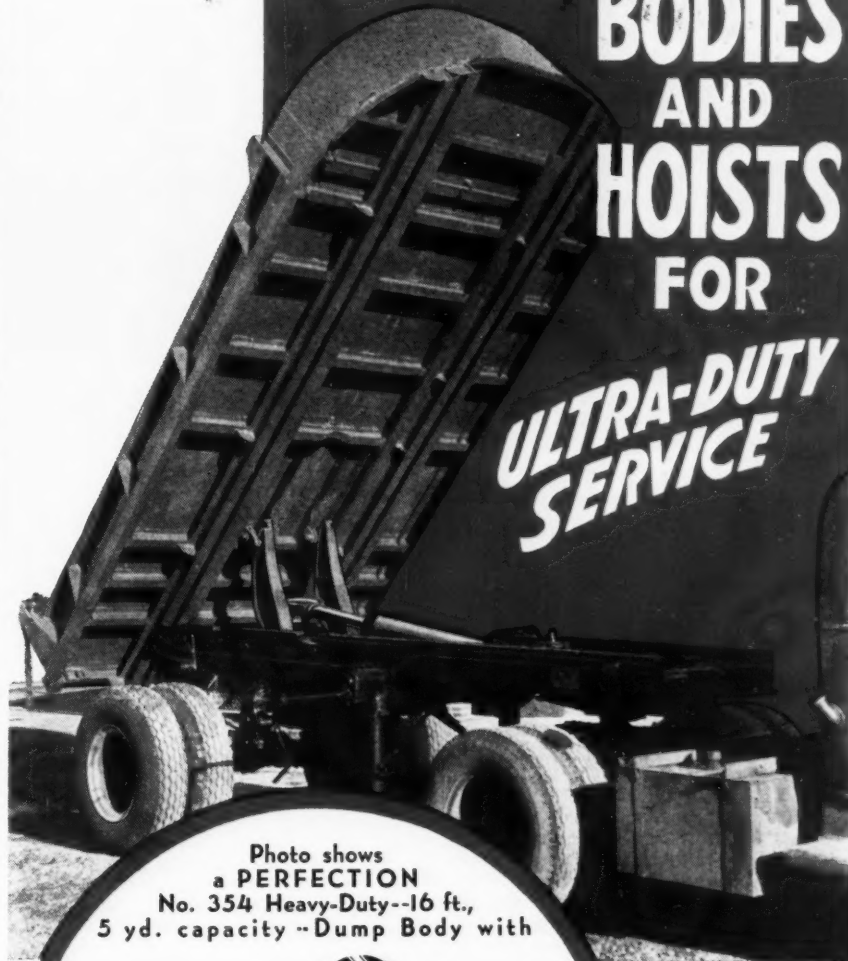


Photo shows  
a **PERFECTION**  
No. 354 Heavy-Duty--16 ft.,  
5 yd. capacity --Dump Body with



—mounted on Semi-Trailer. **PERFECTION** Bodies are also made in all types and sizes for mounting on all makes of standard truck chassis.

**THE PERFECTION STEEL BODY CO.**

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**PERFECTION**  
STAKE and DUMP BODIES  
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\* EXCLUSIVE TRADE MARK REG. U. S. PAT. OFF.

**FOR ANY TRUCK**  
STANDARD or SPECIAL UNITS  
IN ALL SIZES • FOR ANY USE





To Make **MORE MONEY** on Concrete Work

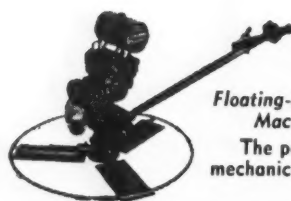
# PUT A *Whiteman* **Power Buggy** ON THE JOB...

The Motorized Wheelbarrow of a Thousand Uses

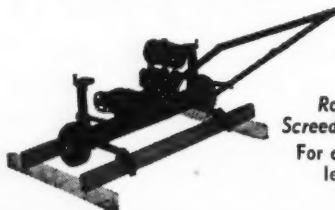
Hauls wet concrete, dirt, sand, bricks, tools . . . anything you can load in or on it. Ideals for pouring and upper story work. Goes through doorways. Weighs 750 lbs . . . width 28" (or 36" with dual wheels) Bucket ht. 34". Speed: 2 to 15 m.p.h forward or reverse Soon pays for itself. Also available with flat stake body.

- Capacity: 2,000 lbs. or 12 cu. ft.
- 6 H.P. does the work of 6 men
- Turns in own radius . . . reverses
- Lever dump for pouring

Plus these time-tested running mates:



**Floating-Finishing  
Machine**  
The perfect  
mechanical trowel



**Rodding (or  
Screeding) Machine**  
For compact and  
level slabs

Write for full details of cost-saving Whiteman Concrete Equipment

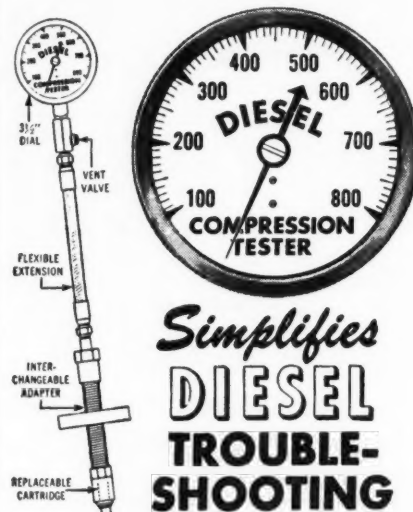
**Whiteman** CONCRETE  
EQUIPMENT  
WHITEMAN MFG. CO.  
3249 Casitas Ave., Los Angeles 26, California

249

**FOUR-WHEEL SCRAPERS**—Open top feature of twin-cable scrapers gives lower center of gravity, improves operator's vision for loading and spreading, permits maximum heaped loads, and makes it possible to load with shovel or dragline bucket for straight hauling operations. Down pressure, applied through mechanical leverage, drives cutting blade into ground and speeds up dig-



ging and loading. Tilting floor, hinged at rear of blade, raises to sweep bowl clean during discharge. Newly designed double power control unit provides positive control for digging, hauling, dumping, spreading, and finishing. Scrapers have 6-, 9-, 11-, 16- or 25-yd. capacity.—The Heil Co., Milwaukee 1, Wis.



No single factor of Diesel operation is more important than compression pressure. That's why trouble-shooting begins with a check of compression of all cylinders. Model YUF Diesel Compression Tester illustrated has been designed to meet all field and shop needs for an instrument that can take hard use yet give reliable, accurate readings on any make of Diesel engine.

Attachment of tester is by means of interchangeable adapter which takes place of fuel injector. In addition to a "universal adapter" which serves more than 50 makes and types of Diesels, we have a complete line of special adapters for practically every commonly-used Diesel engine. Write for a copy of descriptive Leaflet 605.

**ATTENTION! Distributors:** Diesel equipment and accessory jobs are invited to write for information about attractive distribution proposition.

**BACHARACH INDUSTRIAL INSTRUMENT CO.**  
7000 BENNETT STREET, PITTSBURGH 8, PA.

# ALL THIS IN JUST 14 DAYS!

**WEAVER CRANE SERVICE, Inc.**  
**CHARLESTON, W. VA.**

traveled 750 miles over  
 mountain roads — set 31  
 underground  
 storage  
 tanks in

11 West  
 Virginia cities with a single  
**MICHIGAN**  
**TRUCK-CRANE**



## ...half the time required by less mobile equipment!

Weaver Crane Service, Inc., operates throughout the state of West Virginia, placing and removing underground storage tanks for a nationally-known petroleum company. They are highly pleased with MICHIGAN'S truck mobility and stamina on the mountainous roads of West Virginia. In the words of Mr. Albert Weaver, "it has given exceptionally good service . . . Had this work been done with a less mobile machine, the same trip

would have taken at least thirty days . . . I am proud of my MICHIGAN Crane."

This is typical of the praise of MICHIGAN Shovel-Crane owners everywhere. Get all the facts about MICHIGAN — ask for your copy of "MICHIGAN ON THE JOB" which graphically shows the wide range of cost-cutting applications of these pioneer mobile shovel-cranes.

# MICHIGAN

**MICHIGAN POWER SHOVEL COMPANY**  
 495 SECOND STREET • BENTON HARBOR, MICHIGAN, U.S.A.



# Parmanco

**MECHANICAL FEED  
HORIZONTAL DRILL  
WITH TRACTION DRIVE**

**3000 LBS.  
of  
MECHANICAL  
DYNAMITE**

Ten years of field test has proven that our power-feed design of direct, transmission and worm gearing with two-speed control will not only cut shot hole drilling time in half but also eliminates costly maintenance delays. V-belt drive to the power-feed with an additional ample clutch in that assembly gives absolute control of a drilling speed of two to three feet per minute with a retrieving speed of twenty-four feet per minute.

The Parmanco Horizontal is adapted to all forms of high-wall drilling, will handle a six-inch auger up to a distance of sixty feet or more and, by use of our patented augers with interrupted flights and secondary cutters, will drill an absolutely clean hole with a minimum of torque. It permits the drilling of a controlled-angle hole which makes possible a great saving of explosives through the cantilever effect of this controlled-angle drilled hole.

**EFFICIENT STRIPPING STARTS WITH  
EFFICIENT DRILLING**

**PARIS MANUFACTURING COMPANY  
PARIS, ILLINOIS**

**250**

**ELECTRIC ERASER**—New 12-oz. electric eraser shaped to fit hand is valuable in drafting room for sharp, neat and rapid erasures.—**Chicago Wheel & Mfg. Co., 1101 West Monroe St., Chicago 7, Ill.**

**LIFTING GRIP**—Granny-Grips are designed for handling open-top containers, sheet stock, boiler plate and other materials. Jaws operate on eccentric principle whereby the heavier the load being applied, the tighter



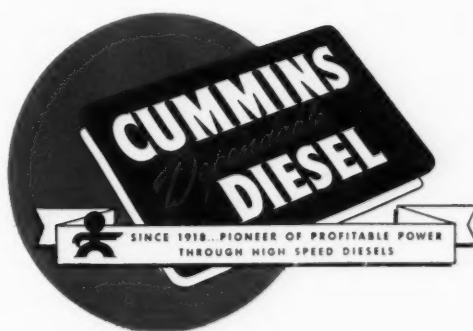
the grip. Made in single-strand and double-strand construction, both with a throat capacity up to 1 in. Single-strand unit tests to 7,850 lb. and weighs 13 lb. Over-all length 29½ in.—**Industrial Products Co., 2715 No. 4th St., Philadelphia 33, Pa.**

**251**

#### **NEW CHAIN SAW FEATURES—**

Two new features in engine and tail stock assemblies of Disston chain saw include automatic chain lubricator and a simplified "cradle balanced" tail stock. Chain lubricator on engine is designed to make volume of oil to chain entirely automatic and of sufficient pressure to prevent clogging of line by sawdust and other foreign matter. Pump operates in any position and flow is automatically shut off when chain is not running. Tail stock has been completely redesigned and made smaller without sacrificing strength. Narrower lines make it easier to handle. Use of aluminum alloy makes for greater rigidity and reduced size in tail stock. Tail stock is cradle-balanced and shaped to fit into operator's arm. Operator can use body of tail stock as fulcrum for maneuvering saw in cut. New tension adjustment makes it possible to alter tension of chain through wide range.—**Henry Disston & Sons, Inc., Unruh and Milnor Streets, Philadelphia 35, Pa.**





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how Cummins *Dependable* Diesels perform profitably on the toughest kind of jobs. Your Cummins dealer—a specialist in power application—will take you to jobs in your vicinity . . . can show you:

- Equipment of the 101 leading manufacturers who satisfy customer demand with Cummins Diesels as standard or optional power.
- The wide range of jobs on which Cummins Diesels are doing more work at less cost.
- Operation records of Cummins Diesels on jobs like yours.

Acceptance by manufacturers and owners . . . on a wide variety of applications . . . is the strongest evidence that Cummins Diesels offer dependable, economical power for jobs requiring single engines up to 275 hp . . . multiples up to 1440 hp.

CUMMINS ENGINE COMPANY, INC. • COLUMBUS, INDIANA

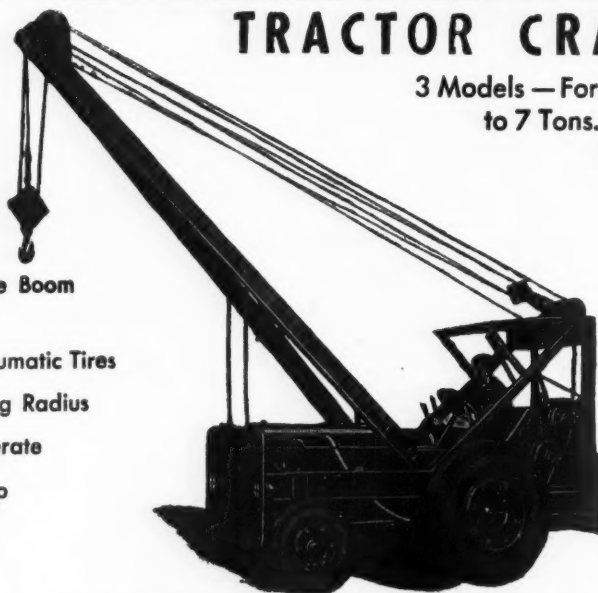
# MERCER

**"The Name that Carries Weight"**  
**MATERIAL HANDLING EQUIPMENT**

## TRACTOR CRANES

3 Models — For Loads Up  
 to 7 Tons. Write for  
 literature.

Special Type Boom  
 Designed  
 Solid or Pneumatic Tires  
 Short Turning Radius  
 Easy to Operate  
 Low Up-Keep  
 Clear Vision  
 Live Boom



MERCER ENGINEERING WORKS, INC.

Plant: Clifton, N. J.

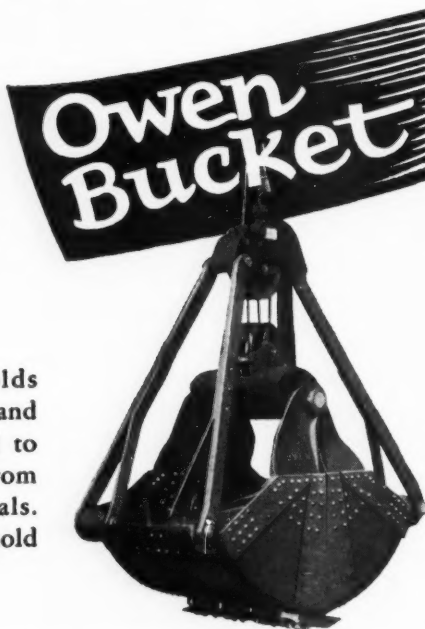
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 30 CHURCH ST., NEW YORK 7, N. Y.

## L-O-N-G-E-R SERVICE LIFE IS SOLD WITH EVERY

**G**RIT-PROOF bearings  
 for Alemite lubricated  
 center shaft minimize wear  
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 bearing surfaces also reduce  
 wear and assure permanent  
 shell alignment.

Owen hinge stop design holds  
 bottom sheave block upright and  
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 contact with abrasive materials.  
 Yes, Longer Service Life is sold  
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6020 BREAKWATER AVE. • CLEVELAND, OHIO

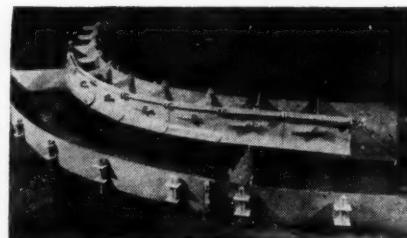
BRANCHES: New York, Philadelphia, Chicago, Berkeley, Calif.

A MOUTHFUL AT EVERY BITE



252

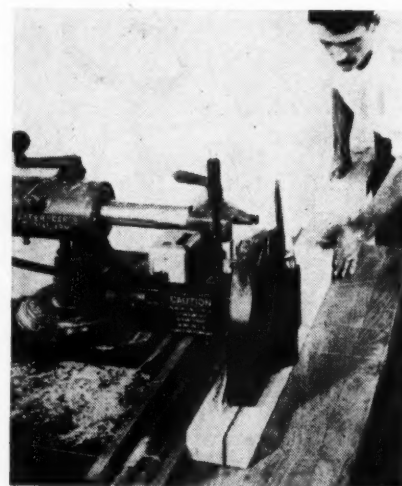
**CURB FORMS**—Articulated flexible  
 variable-radius steel form, for con-  
 struction of battered curb faces on  
 curves, is series of straight rigid  
 identical sections 1 ft. long assem-  
 bled on steel cable. Standard flexible  
 steel forms for back of curb and  
 face of gutter are set in usual man-



ner, then each section of articulated  
 curb face form is keyed to dividing  
 plate, after which slack in cable is  
 taken up to lock sections in correct  
 position. After pouring and strip-  
 ping, resulting series of short chords  
 on concrete curb face is easily fin-  
 ished to true arc.—Blaw-Knox Co.,  
 2086 Farmers Bank Bldg., Pittsburgh  
 22, Pa.

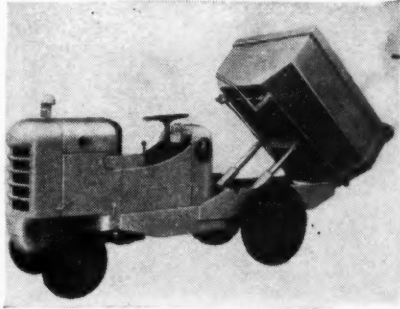
253

**HIGH SPEED RADIAL SAW**—De-  
 signed for cutting wood, plastics and  
 some composition materials and  
 powered by compact lightweight  
 motor available in 1- or 2-hp. ratings,  
 motor operates with spindle speed of



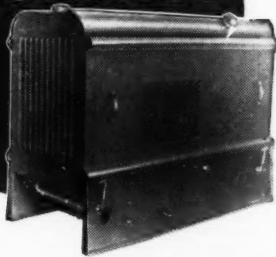
8,000 rpm. Equipped with 12-in. saw  
 blade cutting a full 4 in. Model RS  
 is adaptable for cross-cutting, gang  
 cutoff, angle cutoff, bevel cutting,  
 compound 45-deg. cut dado cutting  
 and ripping operations. Saw can be  
 set at any angle desired. Saw has 27  
 in. long stroke. Table measures 17x46  
 in. and is 31½ in. from the floor. Net  
 shipping weight, including 2-hp. mo-  
 tor, is 260 lb.—Porter-Cable Ma-  
 chine Co., 1714 N. Salina St., Syra-  
 cuse 8, N. Y.

**ALL-WHEEL DRIVE CONVERSIONS**—Designed for new 1948 Ford models to increase tractive power of vehicle in deep mud, sand or snow, or on steep hills. Original front-axle assembly is removed and new front-driving axle is installed. Necessary changes also are made in steering as-



sembly and hydraulic brake connections. All-wheel drive is designed and engineered specifically for Ford vehicles; it is not an attachment, but is actually built into each vehicle becoming an integral and permanent part.—Marmon-Herrington Co., Inc., Indianapolis 7, Ind.

## HERE'S SAFETY INSURANCE



When power goes off, your Fairbanks-Morse generating plant goes on! Automatic... instant... dependable! That's the best description of a Fairbanks-Morse generating plant—the kind you'll find in hundreds of hospitals, institutions, theaters, and other places where service *must* go on in spite of power failure! You, too, should take this precaution, plan to install a Fairbanks-Morse generating plant at once. Available in A.C. or D.C. types; automatic or remote control; 350 to 35,000 watts—a model for every need. For full information write Fairbanks, Morse & Co., Chicago 5, Illinois for folder ADB-400.

### FAIRBANKS-MORSE



**A name worth remembering**

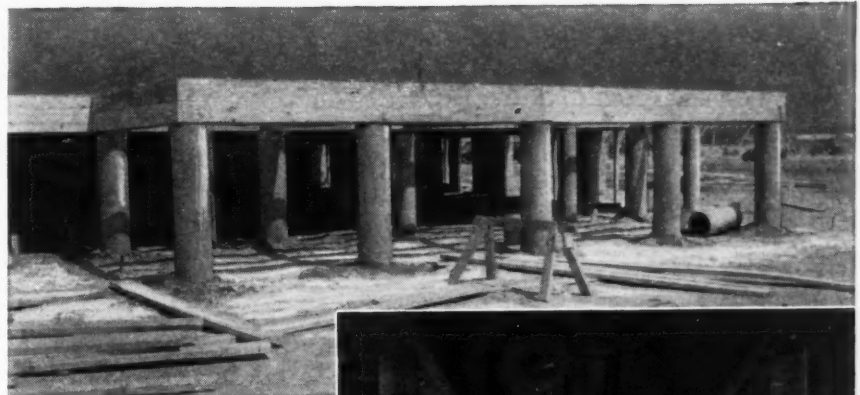
DIESEL LOCOMOTIVES • DIESEL ENGINES • STOKERS • SCALERS • MOTORS • GENERATORS  
PUMPS • RAILROAD MOTOR CARS AND STANDPICES • FARM EQUIPMENT • MACHINERY

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## in forming Concrete Piers and Columns

**WIDELY USED IN  
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**SIX  
STANDARD  
SIZES**

|       |    | INSIDE DIAMETER |         |       |         |
|-------|----|-----------------|---------|-------|---------|
| 8"    | 9" | 10"             | 11 1/4" | 12"   | 13 1/2" |
| 50.26 | 64 | SQUARE INCHES   |         | 113.1 | 144     |
|       |    | 78.54           | 100     |       |         |

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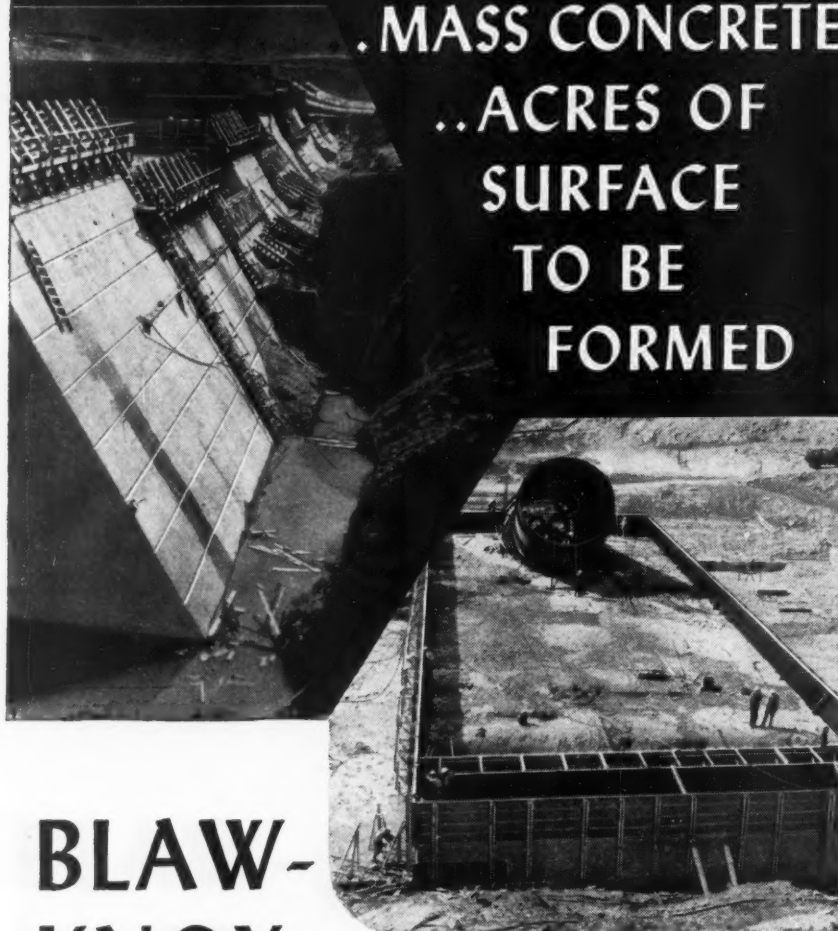
## SONOCO PRODUCTS COMPANY

HARTSVILLE, S. C. MYSTIC, CONN.  
ROCKINGHAM, N. C. GARWOOD, N. J. LOWELL, MASS.





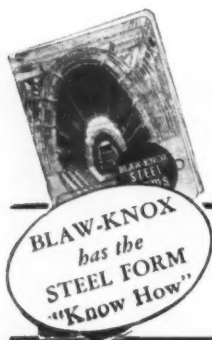
If your Job involves  
**MASS CONCRETE**  
**..ACRES OF**  
**SURFACE**  
**TO BE**  
**FORMED**



**BLAW-KNOX** has devised an ingenious  
**STEEL FORMING** method for you

Blaw-Knox has proved the practicability of its forming method for pouring concrete monoliths of gravity type dams—a design of steel form which is easily handled through successive lifts—and which can easily be aligned for all job conditions.

It would be our pleasure to tell you about this tried and proved system of **BLAW-KNOX STEEL FORMS** for concrete monoliths. You will incur no obligation by asking for this information.



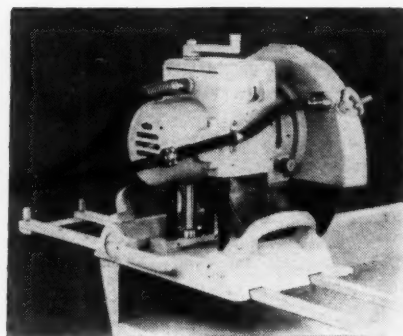
Blaw-Knox STEEL FORMS have been serving engineers and contractors for over 40 years. The Blaw-Knox record of accomplishment is shown in Catalog 1836. Send for a copy.

**BLAW-KNOX DIVISION** of Blaw-Knox Company  
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**255**

**STONE SAW** — Portable electric guided saw cuts wet or dry using diamond or abrasive wheels. Cuts granite up to 5 in. in depth at 4 sec. per sq. in. and up to 10-ft. lengths



with 14-in. wheel. Designed with 5-point suspension at strain points where balance and proper weight distribution are most essential. Weighs 78 lb. Available with standard rails and 4 and 6 ft. long or with clamping rails from 6 to 10 ft. long. Unit is powered by 2½-hp. motor operating at 2,200 to 2,800 rpm.—**Stone Machinery Co., Manlius, N. Y.**

**256**

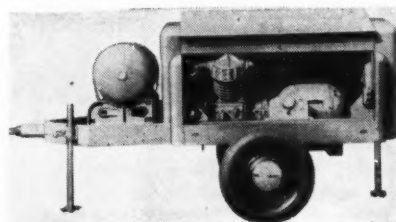
**PORTABLE LIGHT GENERATOR**

—Small, portable air-powered electric generator has been developed for use on inaccessible jobs and in case of power failures. Capable of operating two 75-watt bulbs at 115 v., Airlite is driven by compressed air, and manufacturer says it cannot be harmed by short circuits or overload and is usable after submerging in water. Machine weighs only 8¾ lb., uses 10 cfm. of 90-lb. air, and has output of 150 watts.—**Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.**

**257**

**ELECTRIC COMPRESSORS**—Elec-

tric portable compressors, in 60, 105, 160, 210 and 315 cfm. capacities, are available in skid, 2-wheel and 4-



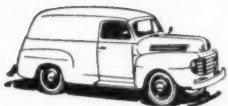
wheel trailer mountings. Air-Chief Electrics are 2-stage compressors with inter-cooler and safety valve, direct-driven from 1,200-rpm. 220/440-volt ac. motors of squirrel cage, horizontal type.—**The Davey Compressor Co., Kent, Ohio.**

# NOW! THE BIGGEST FORD TRUCK LINE IN HISTORY!

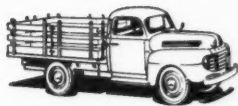


Listen to the Ford Theater,  
Sunday Afternoons—NBC network.  
See your newspaper for time and station.

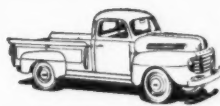
## OVER 139 NEW *Bonus\* Built* MODELS!



**F-1**—4,700 lbs. GVW. 8' Panel, 6½' Pickup, 6½' Platform or Stake. 114" w.b. V-8 or Six.



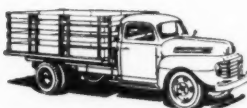
**F-2**—5,700 lbs. GVW. 7½' Platform or Stake, 8' Express. 122" w.b. V-8 or Six engine.



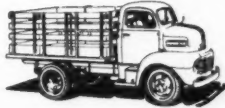
**F-3**—6,800 lbs. GVW. 7½' Platform or Stake, 8' Express. 122" w.b. V-8 or Six engine.



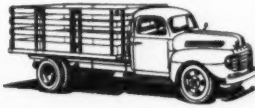
**F-4**—7,500 lbs. GVW. (singles), 10,000 lbs. (duals). 9' Platform or Stake. 134" w.b. V-8 or 6.



**F-5**—14,000 lbs. GVW. 9' & 12' Platforms or Stakes. 134" w.b. & 158" w.b. V-8 or Six engine.



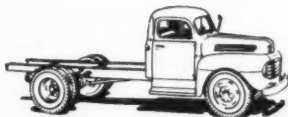
**F-5 C.O.E.**—14,000 lbs. GVW. 9' & 12' Platforms or Stakes. 110"-134"-158" w.b. V-8 or Six.



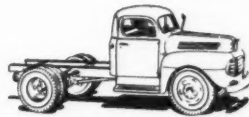
**F-6**—15,500 lbs. GVW. 9' & 12' Platforms or Stakes. 134" w.b. & 158" w.b. V-8 or Six engine.



**F-6 C.O.E.**—16,000 lbs. GVW. 9' & 12' Platforms or Stakes. 110"-134"-158" w.b. V-8 or Six.



**F-7**—19,000 lbs. GVW. 135"-159"-195" w.b. 9.00-20 maximum tires. 145 h.p. V-8 engine.



**F-8**—21,500 lbs. GVW. 135"-159"-195" w.b. 10.00-20 tires. 2-speed axle. 145 h.p. engine.

**NEW!** Three new truck engines . . . a new Six and two new V-8's developing up to 145 horsepower!

**NEW!** Living room comfort in the new Ford Million Dollar truck cab! New seats. New 3-way air control.

**NEW!** Two new BIG JOBS rated to carry gross vehicle weights up to 21,500 lbs.!

**SEE YOUR FRIENDLY FORD DEALER TODAY!**

\*BONUS: "Something given in addition to what is usual or strictly due."—Webster



**BUILT STRONGER TO LAST LONGER**

LIFE INSURANCE EXPERTS PROVE AND CERTIFY . . . FORD TRUCKS LAST UP TO 19.6% LONGER!

## LUFKIN CHROME CLAD "PEERLESS" STEEL TAPE



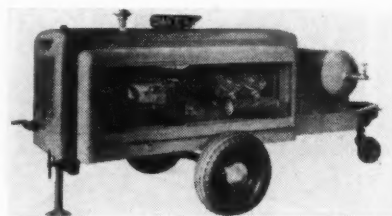
Construction men can't take time or trouble to baby a measuring tape when they're busy on the job. That's why so many prefer the Lufkin "Peerless" Chrome Clad Steel Tape. Flexible  $\frac{1}{8}$ " steel line is covered with smooth, rust-resistant chrome that will not crack, chip, or peel. Jet black markings are always easy to read — they won't wear out. Get the best — buy the Lufkin "Peerless" Chrome Clad Steel Tape from your dealer. Write for free catalog.

# LUFKIN

THE LUFKIN RULE COMPANY  
SAGINAW, MICHIGAN, New York City

258

**TWO-WHEEL TRAILER COMPRESSOR**—Air Chief Model 160 is 4-cylinder V-type compressor with capacity of 160 cfm. Perfect chassis



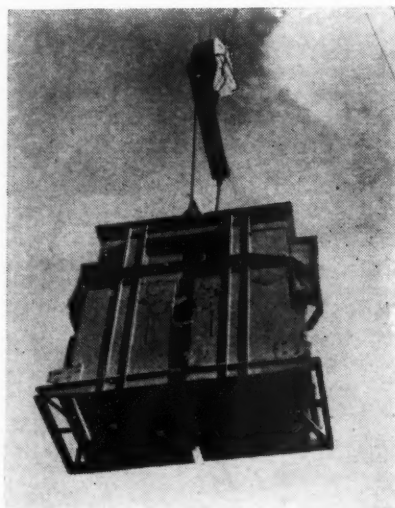
balancing provides handling ease. New trailer compressor unit is 153 in. long, 72 in. wide and 66 in. high; it weighs 4,300 lb.—Davey Compressor Co., Kent, Ohio.

259

**PANEL RADIANT HEATING**—Rubber compound which builds up heat energy within itself upon application of electrical power has been developed for panel radiant heating. Complete heating of homes, in mild climates may be accomplished through Pliotherm paneling built into the structures or as independent wall covering. In more severe climates material is suited for supplementary heating.—Chemical Products Division, The Goodyear Tire & Rubber Co., Akron, Ohio.

260

**CONCRETE POURING BUCKET**—Rectangular bucket has air-operated roller gates and controllable discharge. Larger sizes are dual units formed by coupling together two 4-



cu. yd. buckets with combined capacity of 8 cu.yd. Buckets are available in the following sizes: single, 2-4 cu.yd.; dual, 6-8 cu.yd. Buckets are rectangular, with vertical sides and controllable discharge. Any portion of bucket load of concrete can be discharged at desired location.—Blaw-Knox Co., Pittsburgh, Pa.

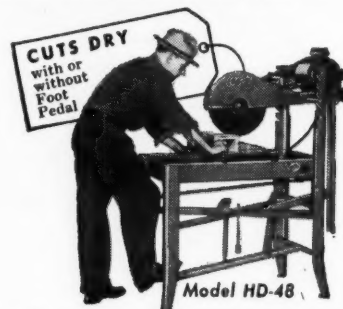
## FASTER CUTTING



**WET  
or  
DRY**  
with the

## NEW HD 48 CLIPPER Masonry Saw

You'll be amazed how quickly and easily you can cut virtually any special length or shape from the hardest masonry materials. Clippers save time — save material, assure better workmanship on every job.

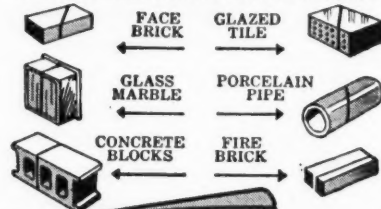


With the exclusive Clipper design, proven throughout the world and guaranteed to provide the fastest cutting speed and the lowest cutting costs.



**DUSTLESS MASONRY CUTTING** so fast and easy. Just turn on the circulating water system and slice through the hardest masonry materials. Foot Pedal control for varying material sizes or lock the cutting head at a set position, whichever is desired.

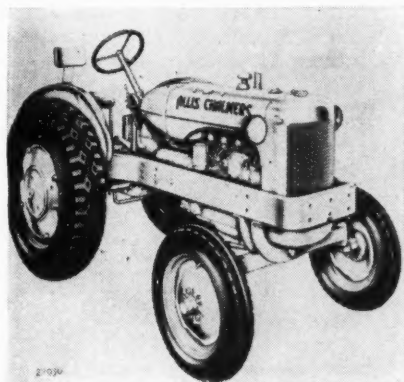
### CLIPPER MAKES THESE CUTS IN SECONDS



**THE CLIPPER MFG. CO.**  
2809 WARWICK • KANSAS CITY 8, MO.  
PHILADELPHIA CLEVELAND ST. LOUIS AUSTIN, TEX.



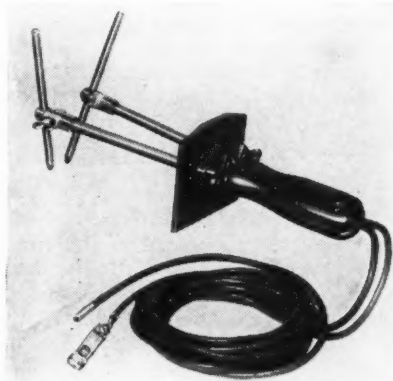
**WHEEL TRACTOR**—New 1948 model wheel tractor designed for municipal and industrial maintenance. Weight of 16.3-hp. unit is 2,365 lb. Rugged steel frame provides easy mounting for wide assortment of



tools such as snow plows, brooms, hoists and mowers. Powered by water-cooled 4-cycle gasoline engine, tractor has wheelbase of 57 7/16 in., length of 97 1/2 in., and ground clearance under front axle of 8 3/4 in.—Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee 1, Wis.

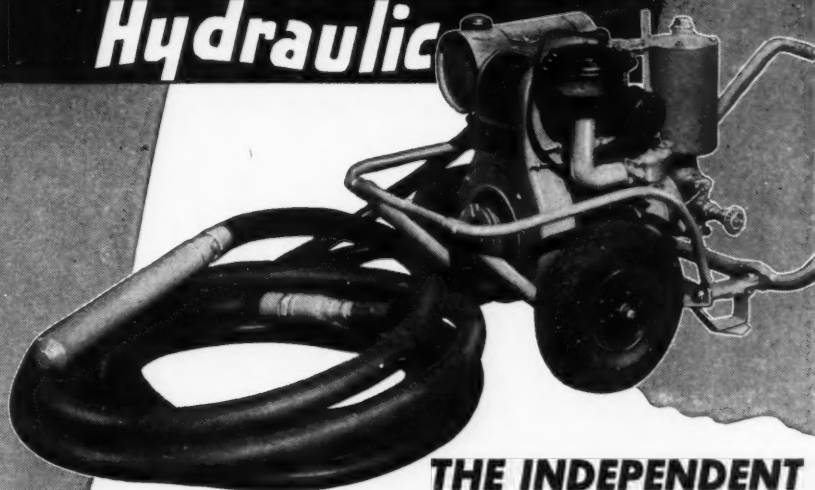
## 262

**CARBON ARC TORCH**—For use with ac. welding machines, torch is of rugged yet lightweight construction. High temperature flame is produced between two copper-coated carbon electrodes clamped in aluminum alloy jaws. Both carbons are readily adjustable, geared to move so that the angle of the carbons can be kept constant at all times. Handle



of torch is provided with simple thumb control tabs geared so that slight movement of thumb adjusts distance between carbons. Jaws will hold tightly either a 5/16 or a 3/8-in. dia. carbon without adapters or special extra jaws. Torch is equipped with two table leads. With an ac. welder, the arc torch can be used for all types of brazing and soldering work, general heating as well as hard surfacing of thin materials. Torch is suitable for both production and maintenance work.—Lincoln Electric Co., Cleveland 1, Ohio.

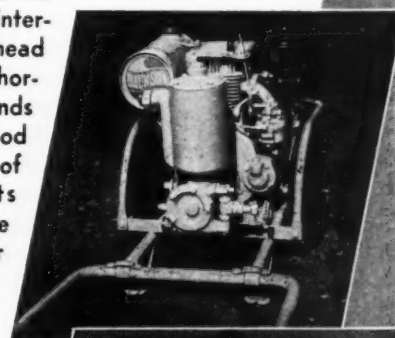
# The JACKSON Hydraulic



## THE INDEPENDENT CONCRETE VIBRATORY UNIT Contractors SWEAR BY (Never at)!

For downright reliability and trouble-free service, as well as the ability to do a perfect job of vibrating concrete on a wide range of construction, the JACKSON HYDRAULIC is tops. There are no troublesome parts to break, and as all moving parts run in oil there is no lubrication problem. Amplitude and frequency, the factors so important to proper vibration of concrete, have been correctly balanced with careful regard to the diameter of the vibrator head. Frequency is adjustable from 4000 to 7000 V.P.M. through throttle of the highly dependable 5 H.P. Wisconsin engine. 34 ft. flexible handle gives a satisfactory operating range for all jobs.

Wheelbarrow mounting makes the entire assembly easily portable. An interchangeable grinding and drilling head is available and easily attached. Thoroughly proved in the hands of thousands of contractors, this machine has stood the test of time and represents one of the very best equipment investments any general contractor can make. Write for the complete facts or see your JACKSON distributor.



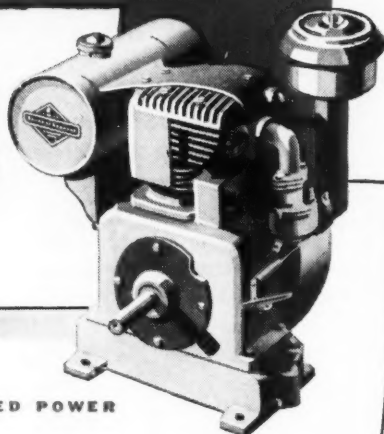
### FOR EACH AND EVERY TYPE OF CONCRETE CONSTRUCTION

the JACKSON line contains a vibrator that will give you the best possible job at the minimum of labor and maintenance cost — electric, engine-driven flexible shaft and Hydraulic models; internal and external types. Drop us a line for the best solution to any vibrating problem.



**ELECTRIC TAMPER & EQUIPMENT CO.**  
LUDINGTON MICHIGAN

# Today's Foremost POWER VALUE



★ AIR-COOLED POWER

For their proven ability to deliver maximum performance, year after year, *experience-built* Briggs & Stratton engines are recognized as today's foremost power value for industrial equipment, farm machinery, and appliances. To make certain your equipment has the utmost in power, stamina, and reliability, specify Briggs & Stratton 4-Cycle air-cooled engines — the **RIGHT Power** to meet the most exacting requirements.

BRIGGS & STRATTON CORPORATION, Milwaukee 1, Wisconsin, U. S. A.

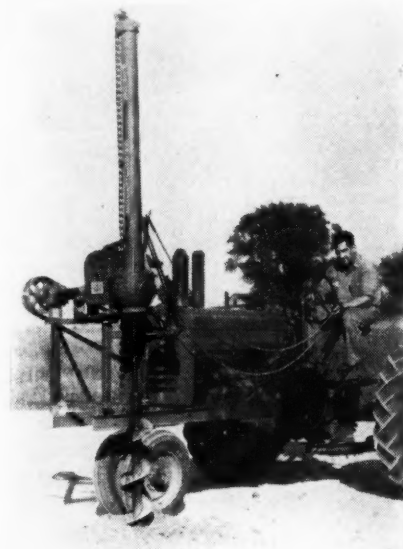
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WISCONSIN  
CENTENNIAL  
EXPOSITION  
Milwaukee  
August 7-29



(For more information on new products, use coupon, p. 120.)

## 263

**HOLE DIGGER**—Manufactured in both automatic and manually operated models, "Speedigger" can be mounted on all tractors and jeeps. Standard model digs 9-in. hole up to 24 ft. deep for shallow tile wells. For



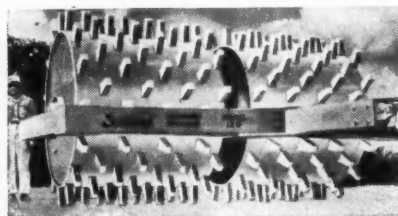
setting utility poles, machine digs 12 in. hole to 6½-ft. depth. Standard types are furnished with 12 in. or 8 in. dia. augers; other sizes also available.—**R. J. Piper Mfg. Co., Princeton, Ill.**

## 264

**LOCK NUT**—Nut with replaceable locking unit, which may be used with either fiber or metal washers where resistance to heat is essential, has great holding strength. Cost of the replaceable units is negligible.—**Swallow Airplane Co., Wichita, Kan.**

## 265

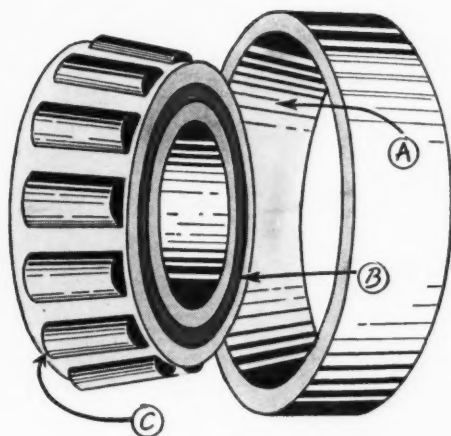
**TAMPING ROLLER**—New Gebhard Model 1TO is designed to give maximum compaction of earth for dams, airports and railroad fills. Equipment has special wedge-shaped feet, hard-surfaced for long life. Each foot has



a bearing pressure of 590 lb. per sq. in. Roller comes in one- or two-drum units. Double unit is attached to a central draw shaft with heavy steel hinges. Each drum acts independently over terrain irregularities.—**Shovel Supply Co., Dallas, Texas.**



#### CASE 1025--PROVIDING CONSTANT LUBRICATION IN WHEEL BEARINGS.



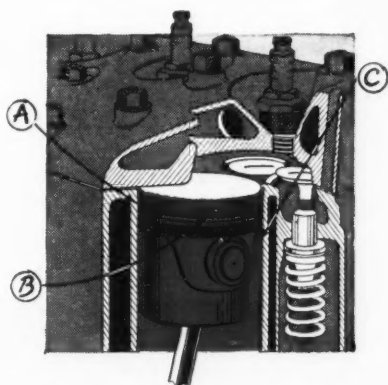
AUTOMOTIVE ROLLER WHEEL BEARING

Wheel bearings in trucks hauling heavy loads in desert heat, winter cold and rain, were in perfect condition long after usual servicing periods when the bearings were lubricated with RPM Wheel Bearing Grease. Recommended for all sizes and types of wheel bearings. Apply to bearing assemblies by hand or with mechanical lubricators.

- A. Maintains tough, resilient film on bearing surfaces - protects during constant pounding of road shocks and under overload pressures.
- B. Feeds slowly to bearing parts ... resists extreme temperatures - will not melt and run from hubs onto brakes.
- C. Stays in smallest bearing clearances.

RPM Wheel Bearing Grease provides good lubrication in the presence of water.

#### CASE 1017--REDUCING OVER-HAULS IN GASOLINE ENGINES.



SECTION OF GASOLINE ENGINE.

When gasoline engines were lubricated with compounded RPM Motor Oil, pistons, cylinders, valve stems and other oil-contacted parts remained clear of carbon, gum and lacquer. Wear was minimized and rusting was not a problem. Recommended for gasoline and butane engines. Seven grades: SAE 10/10W to SAE 70.

- A. Contains detergent which loosens and removes carbonaceous matter, keeps it dispersed in the oil so it is removed with drainings. Assures free-working rings, valves and other parts.
- B. Sticks to hot spots - reduces usual wear on upper cylinders and pistons.
- C. Adherence to cylinders when engine is idle minimizes starting wear and prevents rusting - moisture will not cut through oil film.

Other compounds in RPM Motor Oil resist oxidation, prevent corrosion of bearings, and stop foaming.

For additional information and the name of your nearest Distributor, write

**STANDARD OIL COMPANY  
OF CALIFORNIA**

225 Bush Street, San Francisco 20, California

**The California Oil Company**  
30 Rockefeller Plaza, New York 20, N. Y.

**The California Company**  
17th and Stout Streets, Denver 1, Colo.

**Standard Oil Company of Texas**  
El Paso, Texas



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## PRECISION-BUILT WECO HEAVY-DUTY BLOCKS

*Extra Strength  
throughout to  
withstand sudden  
shock and strain*

Watch-like precision is maintained throughout WECO Block design materials and manufacture. Specimen blocks have been tested to 12 tons with extra strength to take more load. Full swiveling. Shake-proof washers throughout. Proved in heavy duty oilfield service for general industry use. Write for block catalog.

- Drop Side
- Forged Steel Hook
- Snarl-proof



**WELL EQUIPMENT MFG. CORP.**

Subsidiary of Chiksan Company

Houston 1, Texas

Exclusive Sales Representative, Outside Mid-Continent Area

**CHIKSAN COMPANY**

Brea, Calif.

New York 7

Export Sales: CHIKSAN EXPORT COMPANY, Brea, Calif. New York 7



266

**ALL-PURPOSE TOOL KIT**—Designed for construction men, compact and portable tool kit permits drilling of steel, masonry and wood, nut and bolt running and removal and screw driving and removal, all with a single tool, the Ingersoll-Rand electric impact tool. By using standard accessories, tool performs a multitude of jobs easily and quickly, such as wire brush, apply and remove studs, tap, ream, extract broken cap screws and studs and do whole saw work. Kit contains impact tool with Jacobs collet-type



## RENT A THOMAS HOIST

**For Your Building Jobs**

**Direct From the Manufacturer**

Since 1873, Thomas-built hoists have been designed for dependable, economical service.

### NOW AVAILABLE — IN STOCK

The Thomas patented "Band Friction" grips positively, releases easily—ELIMINATES OPERATOR FATIGUE. The Thomas patented "Back-Up" brake requires no power, sets and releases automatically. QUICKLY INTERCHANGEABLE PARTS, and PROMPT, DEPENDABLE SERVICE means Thomas Hoists Keep the Job Going. One, two or three drum hoists up to 100 H.P. gasoline or electric powered.

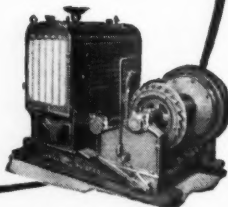
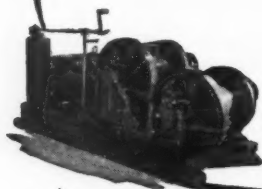
Write NOW for NEW FOLDER No. 101 showing in detail the trips per hour normally obtainable with the various types of Thomas Hoists that are engineered to fit a particular job.

**THOMAS HOIST CO.**

22 S. HOYNE AVENUE

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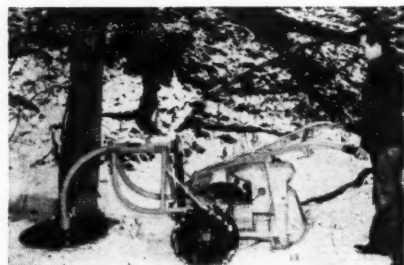
CHICAGO 12, ILL.



267

### SELF-PROPELLED POWER SAW—

Driven by vee-belts, tool fits on to Graham-Paige Motors Corp. Roto-tiller farm machine. Can be used in



horizontal position for felling trees and then can be switched to vertical for cutting them into logs. Table for sawing firewood or lumber also is provided. — **Graham - Paige Motors Corp., York, Pa.**

# Huge L. A. Project Goes Ahead

**Fast...WITH**

**LINK-BELT  
SPEEDER**

**ON THE JOB!**



Swinging a 3½ yd. dragline bucket, this Link-Belt Speeder dragline is loading alluvial soil and shale at the rate of 3000 yds. per day, making way for Los Angeles' unique four level traffic interchange. Next it will place some 15,000 cu. yds. of class A concrete, using a 2½ yd. concrete bucket. Jack Bailer, operator for James I. Barnes Construction Co., says "In 25 years operating experience I never handled a finer rig, and can it travel . . . steers and cuts into tight places like a crawler tractor . . . has the best traction lock brakes I've ever used. After a nine hour hitch at those Speed-O-Matic Controls, I'm still fresh."

Remember, from the K-585 on down, all Link-Belt Speeder Models are built for fast digging, easy handling, and long life, trouble-free service.

10,980A

## **K-585 WITH SPEED-O-MATIC CONTROLS EXCAVATES AND PLACES CONCRETE ON FOUR-LEVEL TRAFFIC INTERCHANGE**

Keeping every Link-Belt Speeder Shovel-Crane in tip-top operating condition is one of the principal interests of Link-Belt Speeder and its nationwide distributor organization. In every principal city in United States and Canada, and in foreign lands, a stock of parts and men trained in the servicing of Link-Belt Speeder products, are in readiness to meet the needs of the user, wherever located.

Link-Belt Speeder advanced engineering, honest construction and quickly available service add up to more profitable machine hours and greater returns on your investment.

# LINK-BELT SPEEDER

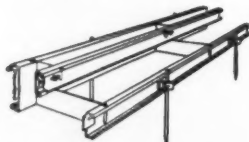


## "QUIT WORRYING ABOUT SPECIFICATIONS"



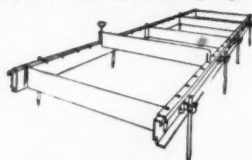
**CURB FORMS**

Sections 10' long—either straight or battered face construction. Steel forms for all special concrete curbs.



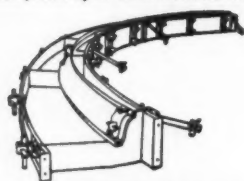
**COMBINED CURB AND GUTTER FORMS**

Each 10' section consists of 1 back curb form, 1 front gutter form and 1 face curb form, also 2 face curb form supports, 2 round stakes for back form and 2 round stakes for gutter form.



**HELTZEL SIDEWALK FORMS**

10' sections, slotted every 12" for division plates, which are removed without disturbing side forms after concrete takes its initial set.



**HELTZEL RIGID RADIUS FORMS**

For building concrete curbs or curbs and gutters when all intersections or corners must match. Heltzel forms made in sets to form a specified radius.



**HELTZEL FLEXIBLE FORMS**

Used when building radius curbs, curbs and gutters or sidewalks where the radius is subject to frequent change or for serpentine work in park areas.

### CONCENTRATED *Engineering* IN CONCRETE CONSTRUCTION

Heltzel Steel Form & Iron Company, Warren, Ohio

Send me the following:

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(Type of construction usually engaged in)

# HELTZEL

STEEL FORM & IRON CO.  
WARREN, OHIO • U. S. A.

## HELTZEL IS THE ANSWER

● Thirty-six years of concentrated engineering on concrete construction is at your disposal when you deal with Heltzel. As a result, the chances are, that what you may regard as a special problem is standard with Heltzel engineers. Illustrated here are a few of the basic Heltzel steel forms—many variations are at your disposal.

(For more information on new products, use coupon, p. 120.)

268

**LEAK SEALER**—Philseal plastic cement is said to be permanent cure for leaks in fuel tanks on cars, trucks or tractors as it is unaffected by gasoline. It can be applied without removing liquid from tank by placing small piece of ordinary screen wire over hole and then filling wire with plastic. Preparation is not affected by heat or cold, and adheres to any type of metal, glass or wood. It can also be applied to leaky water and steam lines, storage battery cases and other equipment on construction jobs.—**The Phillips Plastic Co., Newkirk, Okla.**

269

**LIGHT GARDEN TRACTOR**—Powered by 2-hp. engine with forward speeds from 1½ to 4 mph. Over-all length is 5 ft. 7 in.; wheel base 4 ft.; over-all width, 29 in. Weight, empty, 405 lb. Steering is by a tiller-type



rod that curves over engine from front axle. Equipment for quick attachment to tractor includes sickle mower, disk cultivator, snow-plow, lawnmower and a transportation cart with dump features that carries a load of 800 lb. Operates 7 hr. on single filling of 1-gal. fuel tank.—**Beaver Mfg. Co., Stratford, Conn.**

270

**SMALL PUMP**—Diaphragm pump which is not damaged by sand or abrasives in water is available in 275- and 375-gal. per hr. sizes driven by 1/6- and 1/4-hp. electric motors. Automatic pressure switch provides 20- to 40-psi. service. Gasoline engine driven 400-gal. per hr. pump is also in production. Rubber diaphragm allows for exceptionally simplified internal construction. Water cannot pass diaphragm to reach bearings. No oiling is required. Full ball-bearing construction is employed with bearings factory-greased for life.—**The Edwards Co., Sanford, N. C.**

**Heltzel**  
BUILDS IT BETTER

BINS, Portable and Stationary  
CEMENT BINS, Portable and Stationary  
CENTRAL MIXING PLANTS  
BATCHERS (for batch trucks or truck mixers with automatic dial or beam scale)  
ROAD FORMS (with lip curb and integral curb attachments)  
CURB FORMS  
CURB AND GUTTER FORMS  
SIDEWALK FORMS  
CONCRETE BUCKETS  
TOOL BOXES  
FINISHING TOOLS FOR CONCRETE ROADS



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**YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED**

YOU CAN INSTALL AN  
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**HOSE CLAMP**  
WITH ONE HAND

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SELF-  
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1. "Aero-Seals" can be installed without removing the hose. Simply spring ends apart and snap around. Spring steel clamp retains circular shape.

2. Worm gear teeth engage perforated strip automatically. A fractional turn of the worm drive starts tightening action.



3. Tightening clamp with screw driver results in uniform clamping and sealing pressure around entire circumference. No crimping or bunching of hose to cause leakage.

"AERO-SEAL" Worm Drive Hose Clamps are easy and fast to install—save plenty of time and trouble. No loose parts to drop. Worm Drive is proof against vibration—"AERO-SEALS" will not loosen. Write TODAY for free sample.

WORM  
DRIVE



**"Aero-Seal"**  
T. M. Reg. U. S. Pat. Off.  
**HOSE CLAMPS**

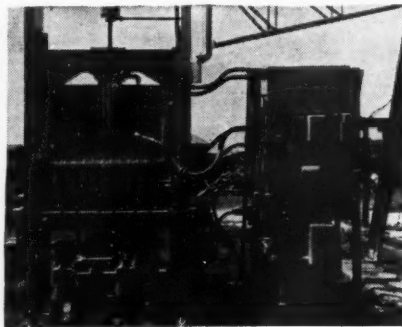
BREEZE CORPORATIONS, INC.  
AIRCRAFT STANDARD PARTS CO. DIV.  
41 S. Sixth Street, Newark 7, N. J.

(For more information on new products, use coupon, p. 120.)

271

**CONCRETE BLOCK MACHINE—**

Automatic concrete block-making machine is hydraulically operated, and may be instantly adjusted to any cycle for variation in mix by simple screwdriver turn on electric timer. Machine frame is raised by



cylinder at top of machine as conveyor chain pulls one of stacked pallets forward. In next move of cycle, loading box fills molds and starts vibrator. Blocks are squeezed as vibration ends, then stripped out and pallet moves forward. Three cycles are completed in 1 min., making six blocks a cycle.—**Accurate Tool & Engineering Co., San Diego, Calif.**

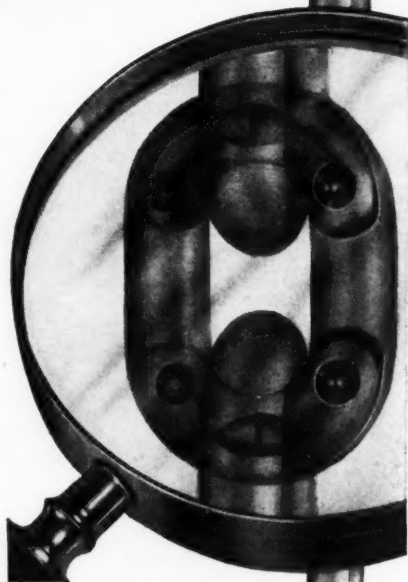
272

**PIPE-LINE CLEANER—**This electric motor-powered sewer and pipe line cleaning machine, portable, 3-speed reversible and highly adaptable, can be used with both flexible



steel and coiled cleaning rods. Various cutting head tools are furnished for clearing stubbornly-blocked lines.—**Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34.**

The  
**Laughlin**  
**"MISSING LINK"**  
With  
**Interlocking**  
**Safety Lugs**



Here's a repair link that locks on to *stay*... is stronger than proof coil chain itself... is applied in a jiffy! Specify Laughlin "Missing Links"... get extra security at real savings in time and money.

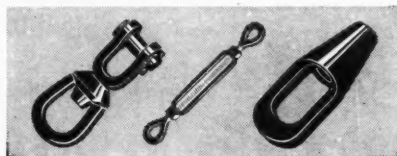
All sizes from  $\frac{3}{16}$ " to  $1\frac{1}{4}$ ", inclusive. Write for Catalog 140... the data book of the fitting industry. Address **THE THOMAS LAUGHLIN CO., Dept. 1, Portland 6, Maine.**

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**LAUGHLIN**



THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



## 273

**TRACTOR SCOOP**—New reversing fixture for Hydro-Scoop converts this hydraulically-operated farm-tractor scoop into small shovel for handling bulk materials. Loading in reverse, it eliminates hand shoveling



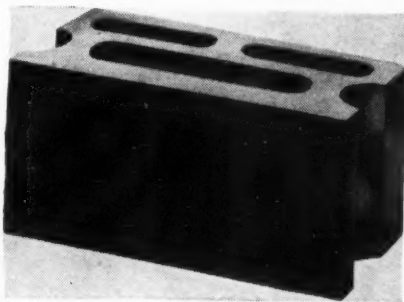
in moving materials in and out of stock piles, loading and unloading cars, shoveling snow or fill. It handles all loose materials, reaching into tight and difficult spots. Heaped capacity is up to 10 cu. ft.—**Stockland Road Machinery Co., 2653 34th Ave. So., Minneapolis 6, Minn.**

## 274

**NEW WELDING ELECTRODE**—For welding mild steel, new Airco No. 387 has characteristics which include the following: Bead is smooth and of proper contour; excellent operating characteristics on small ac. or small dc. current; minimum of spatter is produced; operates in all positions. Available in  $\frac{1}{8}$ ,  $\frac{5}{32}$ ,  $\frac{3}{16}$  and  $\frac{1}{4}$  in. diameters.—**Air Reduction Sales Co., 60 East 42nd St., New York 17, N. Y.**

## 275

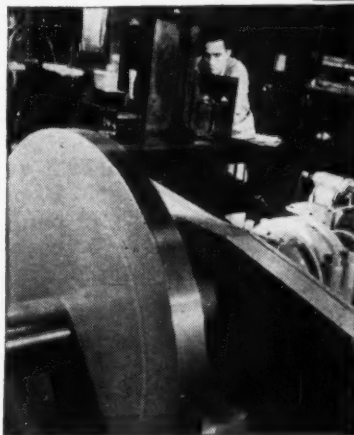
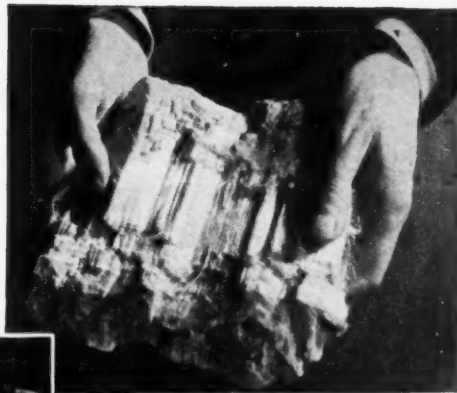
**THREE-CELL CONCRETE BLOCK**—Three-cell Redi-Furred concrete block is designed to reduce heat loss and moisture travel so plaster furring strips on inside of wall can be eliminated. Instead of normal cellular block structure, Redi-Furred has



three long air cells parallel to long side of block so moisture cannot travel straight through concrete at any point. Tests conducted by manufacturer indicate that heat loss is 10 to 15 percent less than in conventional blocks. Data on design, and machine for manufacture, are now available.—**F. C. George Machine Co., 100 S. Westmoreland Drive, Orlando, Fla.**

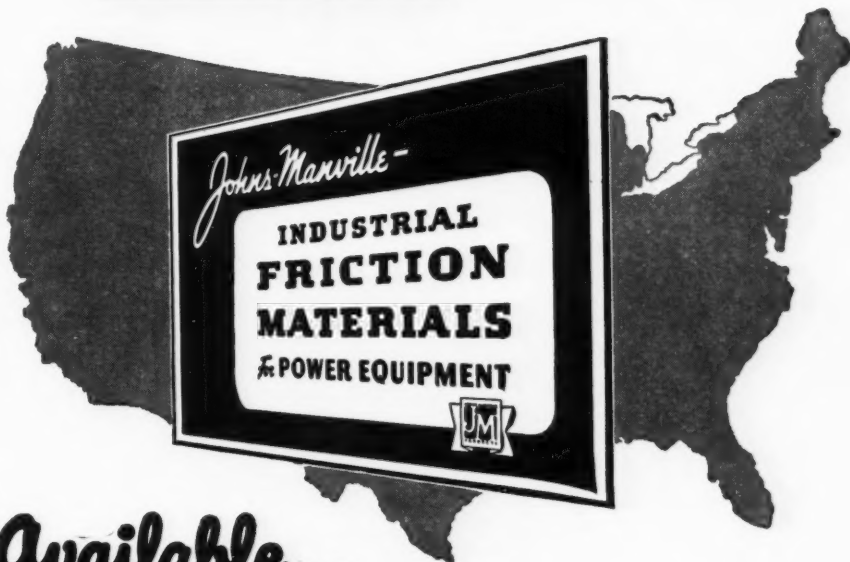
# Made..

by the world's largest producers of ASBESTOS, J-M Friction Materials are mechanically strong, highly heat-resistant!



# ..Tested

in the famous J-M Research Laboratories under actual field conditions!



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The highly trained buyers of most leading manufacturers started your industrial equipment off *right* with J-M Friction Materials ... controlled from mine to user by the outstanding producer of asbestos products. *Stay* with Johns-Manville and you're sure of the best! Contact your nearest J-M Distributor for help in selecting the proper style of J-M Friction Material ... or write to Johns-Manville, Box 290, New York 16, N. Y.



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## INDUSTRIAL FRICTION MATERIALS

No. 1 With Leading Manufacturers



# NEW

## COMPLETE LINE GORMAN-RUPP CONTRACTOR'S PUMPS

Gorman-Rupp Self-Priming Centrifugal Pumps have long led the industry in performance and dependability. NOW! Gorman-Rupp goes further ahead with a NEW LINE OF CONTRACTOR'S PUMPS. Streamlined inside, where streamlining counts, these new pumps are the Quickest Priming, Fastest Pumping, Never-Quit Pumps available.

Take quick priming: the New Model 40M 4" pump primes at 20 ft. suction in 33 seconds; at 30 ft. suction in 67 seconds. The New Model 90M 6" primes at 30 ft. suction in 80 seconds.\*

Our challenge is no idle gesture. We want YOU to give these pumps an on-the-job test for your own satisfaction. We back our claims with this guarantee!

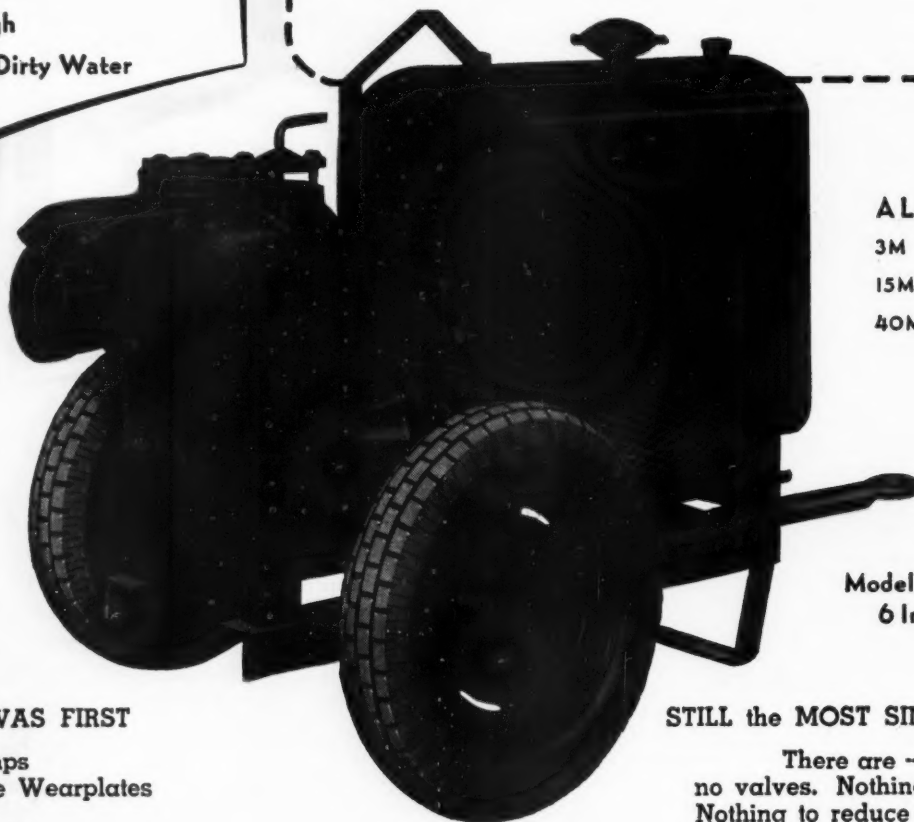
### THE GORMAN-RUPP GUARANTEE

Our distributors are authorized to put a Gorman-Rupp Contractor's Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water, more hours, using less gasoline, to prime quicker and at higher suction lifts than any other self-priming pump. If it isn't the best all around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

\* Sea level. Performance data inquiries invited.

*Challenging*  
ANY  
CONTRACTOR'S PUMP,  
SIZE FOR SIZE, TO

1. Prime as Quick
2. Prime as High
3. Pump More Dirty Water



### ALL SIZES

3M - 7M - 10M

15M - 20M - 30M

40M - 90M - 125M

Model 90M  
6 Inch

### GORMAN-RUPP WAS FIRST

- To Build Blue Pumps
- To Use Renewable Wearplates

### STILL the MOST SIMPLE PUMP

There are -- no ports --  
no valves. Nothing to clog.  
Nothing to reduce capacity.



THE

**GORMAN-RUPP COMPANY**

308 N. BOWMAN STREET

MANSFIELD, OHIO

Write for the new Contractor's Pump Bulletin 8-CP-11.

Cedarapids Unitized Plant with scrubber unit produces coarse aggregate.



**THE JOB**  
Producing Aggregates  
for  
FT. GIBSON DAM

Twin hammermill installation produces sand with fineness modulus of not less than 2.40 or more than 2.90 with not more than 0.10 variation.

**THE EQUIPMENT**  
2 CEDARAPIDS  
UNITIZED PLANTS

**THE CONTRACTOR**  
M. O. WEAVER, Inc.  
Des Moines, Iowa



When M. O. Weaver, Inc. of Des Moines, received the contract for producing 600,000 tons of aggregate and 250,000 tons of manufactured sand for the Ft. Gibson Dam near Muskogee, Oklahoma, they selected Cedarapids equipment as best able to meet the specifications. Two Unitized Plants and twin hammermills were set up to produce the five finished sizes: manufactured sand, No. 4 to  $\frac{3}{4}$ ",  $\frac{3}{4}$ " to  $1\frac{1}{2}$ ",  $1\frac{1}{2}$ " to 3" and 3" to 6", all from limestone. The production of 250 tons per hour enabled M. O. Weaver, Inc. to fulfill their contract for aggregates specified *on time* profitably.

Whether your aggregate production requirements call for a few thousand yards or several hundred thousand, it will pay you to follow the lead of contractors who know construction equipment best and buy Cedarapids.

**Cedarapids**

Built by  
IOWA

**THE IOWA LINE**  
of Material Handling Equipment  
Includes:

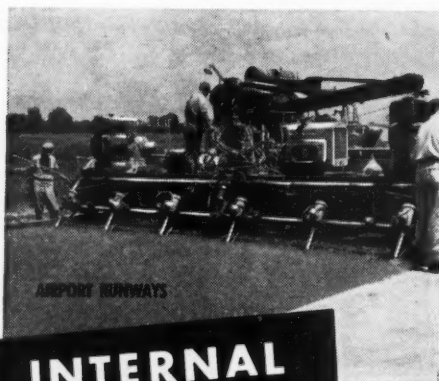
- ROCK AND GRAVEL CRUSHERS
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- WASHING PLANTS
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- STEEL TRUCKS AND TRAILERS
- KUBIT IMPACT BREAKERS



**IOWA MANUFACTURING CO.**

CEDAR RAPIDS, IOWA  
U. S. A.

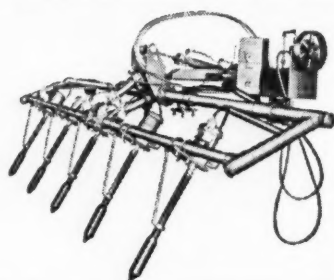
THE MODERN  
CONSTRUCTION  
OF CONCRETE  
HIGHWAYS AND  
AIRPORT RUNWAYS  
DEMANDS...



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Write today for complete details on the  
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**V-BELTS** all sizes

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|------|--------|-----------|---------------|
| AIR  | WATER  | SUCTION   | COMPRESSOR    |
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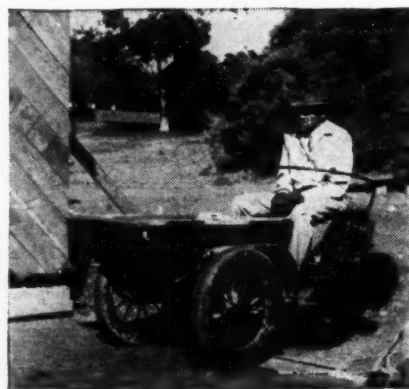
Phone: BArcley 7-9793

276

**PIPE COATING**—Duratex protective coating for underground pipes has exceptional resistance to electrolysis and corrosion. It also has great shock impact resistance; will not creep under earth pressures. Other advantages claimed are: great ductility, high flash and fire point, high bond and tensile strength. Duratex is non-toxic, is not affected by alkalis and soil acids, will not settle out or coke up after repeated reheatings, requires no agitation in kettle.—**National Petroleum Sales, Inc., 315 West 9th St., Los Angeles, Calif.**

277

**MOTORIZED WHEELBARROW**—Self-propelled wheelbarrow, or Powercart, carries 1,500 lb. or 9 cu.ft. of concrete, and will haul all other construction materials. All-welded rig weighs 600 lb.; is light enough for scaffolds and runways. Power unit is 2½-hp. air-cooled gasoline engine,



detachable from cart for extra use as universal small power unit. Powercart is anti-friction-bearing equipped, with standard parts throughout, is 81½ in. long, and has 31-in. loading height. Turning radius, 4 ft.; speed, 6 to 8 mph.—**Gar-Bro Manufacturing Co., 2416 E. 16th St., Los Angeles 21, Calif.**

278

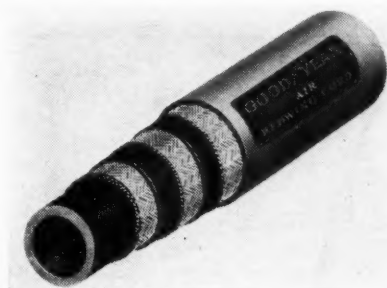
**ABRASIVE SAFETY TREAD**—Material called AMCOLUN is composed of abrasive material including aluminum oxide and other inert fillers bonded together with a heat-resisting, thermo-setting phenolic resin. Durable safety tread has non-slip surface effective under wet, dry or oily conditions. Weighs 2½ lb. per sq. ft. Shows less than 1 percent absorption after 24-hr. immersion. Available with nosing for steps and also produced in sheets and in 6-in. sq. tiles for floor coverings. Colors: red, green and black.—**American Abrasive Metals Co., Irvington, 11, N. J.**



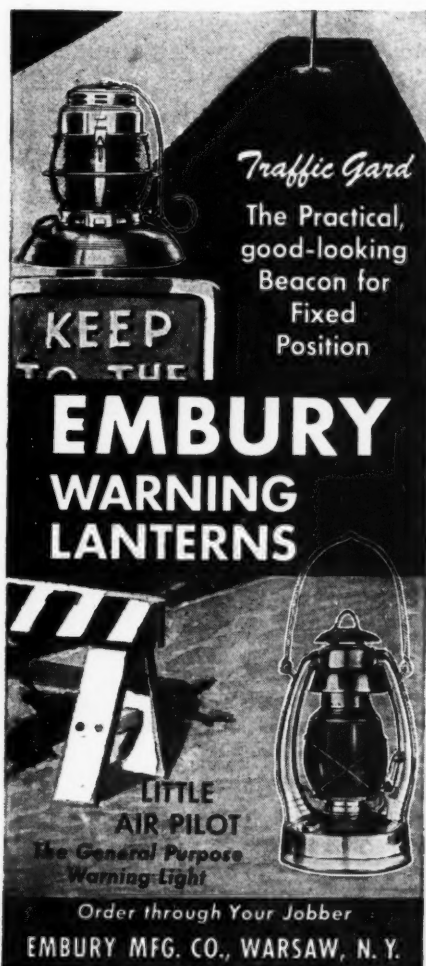
(For more information on new products, use coupon, p. 120.)

279

**COVER FOR AIR HOSE**—New hose cover utilizes cushioning stock similar to that developed for tire treads. Softness of heavy-gage stock affords maximum resistance to extreme



abrasion and gouging. Hose is reinforced with a cabled cotton body for greater carcass strength and flexibility. Seamless tube is unaffected by lubricants. Manufactured in two types—two-braid standard for pneumatic tool service and three-braid heavy-duty for air drill usage. Hose sizes range from  $\frac{3}{8}$  to  $1\frac{1}{2}$  in. in 25-50-ft. lengths or 450-ft. reels—Goodyear Tire & Rubber Co., Akron, Ohio.



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The Practical,  
good-looking  
Beacon for  
Fixed  
Position

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**EMBURY**  
**WARNING**  
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**LITTLE**  
**AIR PILOT**  
The General Purpose  
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**EMBURY MFG. CO., WARSAW, N. Y.**

# For Faster LIFTING For Safer LOWERING

## SIMPLEX

### RATCHET LOWERING JACKS



**NO. 22**  
**10-TON CAP.**

**For Contractors, Bridge and  
Road Builders, Truckers,  
Operators of Heavy Equipment**

Use these single acting jacks for safe, sure work in lifting, lowering, pushing or pulling. Double lever sockets speed work in cramped quarters and in angular lifting. All models will lift full capacity on the toe or on the cap—a feature that only Simplex can give you.

Best materials are used throughout for rugged, long-life operation, by the manufacturer awarded the only gold medal for the safety of jacks by the American Museum of Safety.

**SIMPLEX HYDRAULIC JACKS**



For heavy duty work in shops and factories, in construction and transportation. Powerful hydraulic operation. Available in eight models to handle from 3 to 100 tons—tested to 100% overload. Write for Bulletin HJ-47

Available in 10 models with capacities ranging from 5 to 20 tons, and lift from 7 to 18 inches. All have two-way standard lever socket except three largest models; these are available with any of three types of sockets. Delivered with lever included.

For full information, write for Bulletin: Industrial 48.

**Simplex**  
LEVER - SCREW - HYDRAULIC  
**Jacks**

**TEMPLETON, KENLY & COMPANY**  
1008 South Central Avenue • Chicago 44, Illinois



## WHY BUY "BLINDFOLDED"?



Why take a chance when you buy a concrete mixer or paver? Why not be sure *in advance* of the exact capacity by making sure that your next mixer or paver wears an AGC Rating Plate!

The AGC Rating Plate eliminates the guesswork . . . the "blindfold" method of equipment buying. Before any mixer or paver can wear the Rating Plate, it must accurately conform to the standards set up by the Mixer Manufacturers' Bureau for your protection. Size and capacity are guaranteed as stated on the plate.

Be sure! Standardize on equipment wearing the AGC Rating Plate and buy with confidence . . . operate with accuracy!

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Affiliated with the Associated General Contractors of America, Inc.



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The Jager Machine Co.  
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The T. L. Smith Company  
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Jackson, Mich.

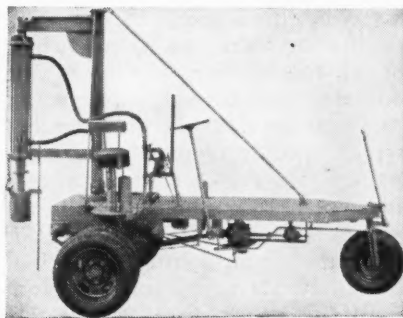
## New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

601

**TANDEM ROLLER** — An 8-p. catalog describes a new 3-5-ton tandem roller with its variable weight, high maneuverability, ample power, and compaction effectiveness. Roller is said to fulfill all specification requirements for compressions ranging from 109 up to 181 lb. per in. of roll width. May be used on small construction jobs, rolling driveways, filling station and parking lot surfaces, rebuilding and widening of old roads, and maintenance jobs of all kinds. In addition to detailed construction views and data, complete specifications are given.—**The Galion Iron Works & Mfg. Co.**

### BREAK PAVEMENT *the low cost way!*



#### RAPID PAVEMENT BREAKER

cuts concrete and tamps back fill . . . will break inside floor and vertical walls. Cost of breaking and tamping is one-sixth to one-tenth other methods.

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**R.P.B. CORPORATION**  
2751 EAST 11th STREET • LOS ANGELES, CALIFORNIA

## Insurance . . . and YOU

#4 of a series of informative articles  
on insurance and bonding.

## Where will you get the money for machinery?

Construction and Contracting equipment prices are at an all-time high. If an accident crippled your equipment, could you afford to replace it—or would you be forced to stop work?

The hazard of equipment damage or loss is ever-present in the contracting business. No matter how rugged a piece of machinery may be, you always stand the risk of losing it through fire, flood, collision, or even lightning! You can free yourself from this possibility of *tremendous financial loss* by providing adequate Contractors' Equipment Insurance, which protects you against direct physical loss or damage caused by:

THEFT, FIRE, LIGHTNING, EXPLOSION, CYCLONE, TORNADO, WINDSTORM, HURRICANE, HAIL, FLOOD, EARTHQUAKE, SUBTERRANEAN DISTURBANCE, LANDSLIDE, COLLAPSE OF BRIDGES, CULVERTS OR MANHOLE COVERS, COLLISION, UPSET OR OVERTURN, RIOT, CIVIL COMMOTION, RIOT ATTENDING A STRIKE, MARINE PERILS, INCLUDING GENERAL AVERAGE AND SALVAGE CHARGES.

Contractors' Equipment Insurance protects *your equipment while moving, in storage, and in operation!*

Your Hartford Agent, or your own insurance broker, will gladly furnish details of this *broad coverage* equipment policy.

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Writing practically all forms of insurance except personal life insurance  
Hartford 15, Connecticut



## FOOTE *Kinetic* MIXER

*for all* ASPHALT  
MAINTENANCE JOBS

Here's a mixer for all types of asphalt patching jobs ... driveways, parking lots, sidewalks, buildings: Wherever there is an asphalt patching problem. Take it anywhere; tow it behind a car or truck. It is easy to handle and will mix either hot or cold material. It will produce 3 cu. ft. in 30 seconds. The new Kinetic mixing principle assures a thorough coating of aggregates. For details, send for Bulletin K-100.



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Admural Black Top Pavers,  
MultiFoote Concrete Pavers,  
and Foote Kinetic Mixers.

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BITUMINOUS DISTRIBUTORS



**ACCURATE...DEPENDABLE...ECONOMICAL**—Reduce maintenance and operating expenses, cut labor costs, insure accurate, uniform coverage with dependable Etnyre "Black-Toppers". Designed to do the job better...faster...cheaper. See your Etnyre dealer or write us today for complete details.

**E. D. ETNYRE & CO., Oregon, Illinois**

(For copies of bulletins listed, use coupon, p. 120.)

**602**

### STOPPING CELLAR WALL LEAKS

—Leaflet tells advantages of an iron cement to seal leaks in concrete, brick or stone walls or floors, applied on inside and outside surfaces, either wet or dry. Product also is used for surfacing and dust-proofing new concrete floors and lining cisterns, pools, tanks, fountains, etc., and repainting joints between brick, concrete or stone blocks, and sealing openings around pipes extending through walls or floors. — **Smooth-On Mfg. Co., 570 Communipaw Ave., Jersey City 4, N. J.**

**603**

**ROCK DRILL**—Pamphlet describes new self-rotating rock drill which weighs only 9 lb. and is hand-held pneumatic drill that hits and rotates for speed of penetration. Convertible to chipping hammer by removal of only one part.—**Cleco Division, Reed Roller Bit Co., P. O. Box 2119, Houston, Tex.**

**604**

**SOIL STABILIZATION** — Birds-eye view of mixing for bituminous construction and all soil stabilization processes as well as operating techniques in other applications of interest to highway engineer, contractor and landscape architect is offered in a new 23-page profusely illustrated catalog.—**Seaman Motors, Inc., 298 North 25th St., Milwaukee 3, Wis.**

**605**

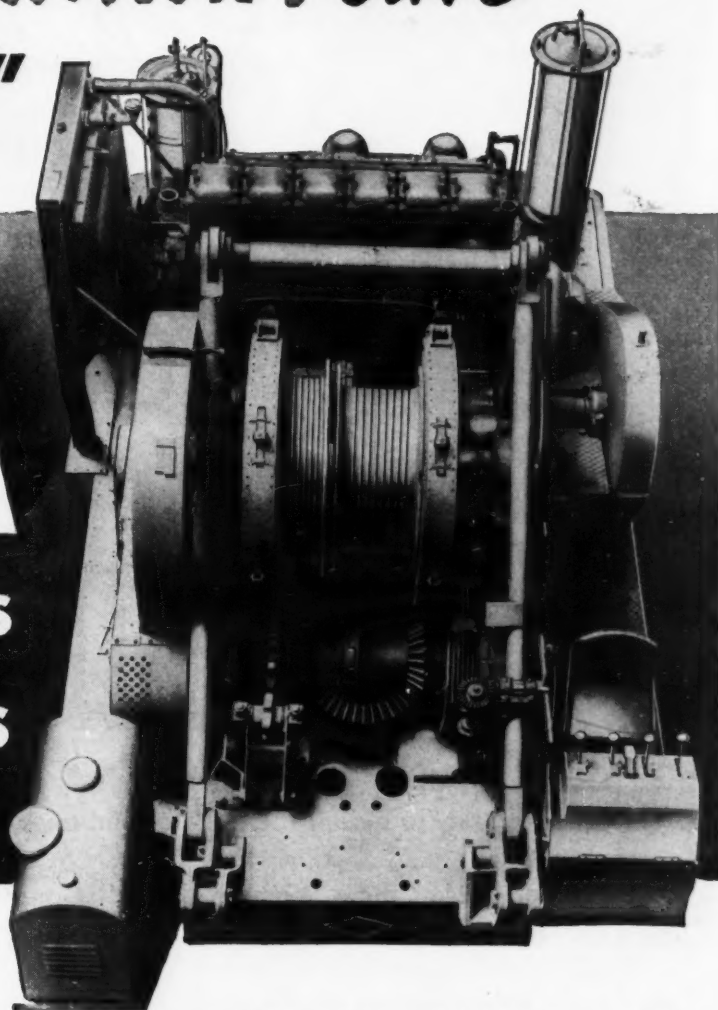
**ALUMINUM PAINTS** — How to use aluminum paints to get best results on wet walls, on wood, metal, brick, concrete (inside and outside), on heated surfaces, on roofs, on equipment, on products; which specific types of aluminum paint to use for specific purposes—these and other useful data on obtaining maximum protection with aluminum paints is described in a new 24-p. manual.—**Aluminum Industries, Inc., 2438 Beekman Street, Cincinnati 25, Ohio.**

**606**

**VIBREX SCREEN** — A new 4-p. booklet explains the 2-bearing circle-throw principle employed in this screen, which has adjustable stroke and easy angle-adjustment. Also tells how the screen, whether floor-mounted or suspended, is always in perfect balance. Applications and the full range of sizes in single or double deck styles are included.—**Robins Conveyors Division, Hewitt Robins, Inc., Passaic, N. J.**

# *Built-in* STAMINA cuts "DOWN-TIME"

## of **LIMA** Shovels, Cranes and Draglines



A LIMA user recently wrote us as follows: "It may be of interest to you to learn of the service we received out of our first LIMA.

"We used this machine on a double-shift basis for over a year and have not had any delay whatsoever other than a negligible delay caused by a loose fan belt.

"I have been using power shovels of various makes for years and personally feel this beats the record of any other shovel I ever used. I am highly pleased with your LIMA units." (Name on request. This customer now owns 8 LIMA machines and has one on order.)

An examination of the main machinery of any LIMA unit shows why such records are possible. In this clean-cut design, the fewest number of shafts are required to transmit power from engine to dipper. Important bearings including those in the drum are of the anti-friction type. Large drums (approximately 30 times the diameter of the cable) increase output with minimum cable wear. Permanently aligned shafts prevent chattering and grabbing of clutches. These are only a few of the reasons why we say:

### **LIMA Equipment STAYS ON THE JOB!**

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LIMA, OHIO

OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.

**LIMA**  
**HAMILTON**  
CORPORATION



*Three Reasons Why  
Construction Men  
Like the Name  
**GOODALL**  
on Their*

## **BOOTS and CLOTHING**

- 1.** Quality is plainly evident in every detail . . . the materials; the way they're made; their fine appearance.
- 2.** Comfort makes them "easy to wear," no matter how long they're worn, or how active the wearer must be.
- 3.** Long Wear assures real economy . . . a lot of extra time between replacements, regardless of rough use.



### **"TOE-SAVER" BOOTS**

Famous for their durability and comfort, and the positive protection afforded by the white toe-cap. Grid-tread soles assure long wear and prevent slipping on wet surfaces. Made in short, three-quarter and full-hip lengths.

The Goodall Line includes other types and styles of boots, bootees, work shoes and over-shoes . . . all made of quality materials, to quality specifications.



### **COATS, JACKETS, OVERALLS, HATS**

A variety of styles, rubber and oiled, for economical wet-work and wet-weather protection, above ground or below. Linemen's coats—no metal parts. Soft, "squam" and safety hats. Cape caps. Work gloves for all purposes.

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**607**

### **SPRAY FINISHING EQUIPMENT**

This revised catalog not only shows new additions to the company's line of spray painting equipment and accessories, but also describes engine cleaners, guns for applying asphalt and other heavy materials, and flow guns for compounds used to seal gaskets, moldings, cracks, corners and crevices, and air compressor units. —Binks Mfg. Co., 3116-40 Carroll Ave., Chicago 12, Ill.

**608**

### **BRASS CLEANING and FINISHING**

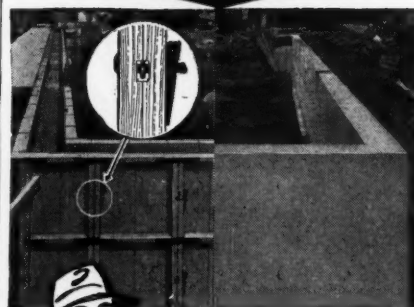
A 28-p. handbook on cleaning, finishing and coloring copper, brass and bronze. Contains good advice on maintenance of such metals and alloys used for architectural ornamentation, building fronts and utilitarian purposes in many structures. —Copper & Brass Research Association, 420 Lexington Ave., New York 17, N. Y.

**609**

### **BUILDING MAINTENANCE MATERIALS**

Pamphlet tells about materials for new floors, foundations, walls, open structural members, mortar joints and building maintenance. —Stonehart Co., 401 N. Broad St., Philadelphia 8, Pa.

**BELIEVE IT OR NOT—  
THESE FORMS MAKE MONEY**



**SYMONS FORMS**  
Saved 50% of forming labor on our last job. Brother that's making MONEY!

The simple wedge clamp illustrated above holds forms together, as well as the ties between forms. This eliminates the use of nails, spreaders or band irons, and requires the use of only one waler. The forms last 50 to 100 reuses without repair. Symons Forms can be rented with purchase option or you may purchase the hardware with blueprints to make your own forms. WRITE TODAY for our big free booklet which completely describes the Symons forming system and accessories.

**SYMONS CLAMP & MFG. CO.**

4255 DIVERSEY AVE.

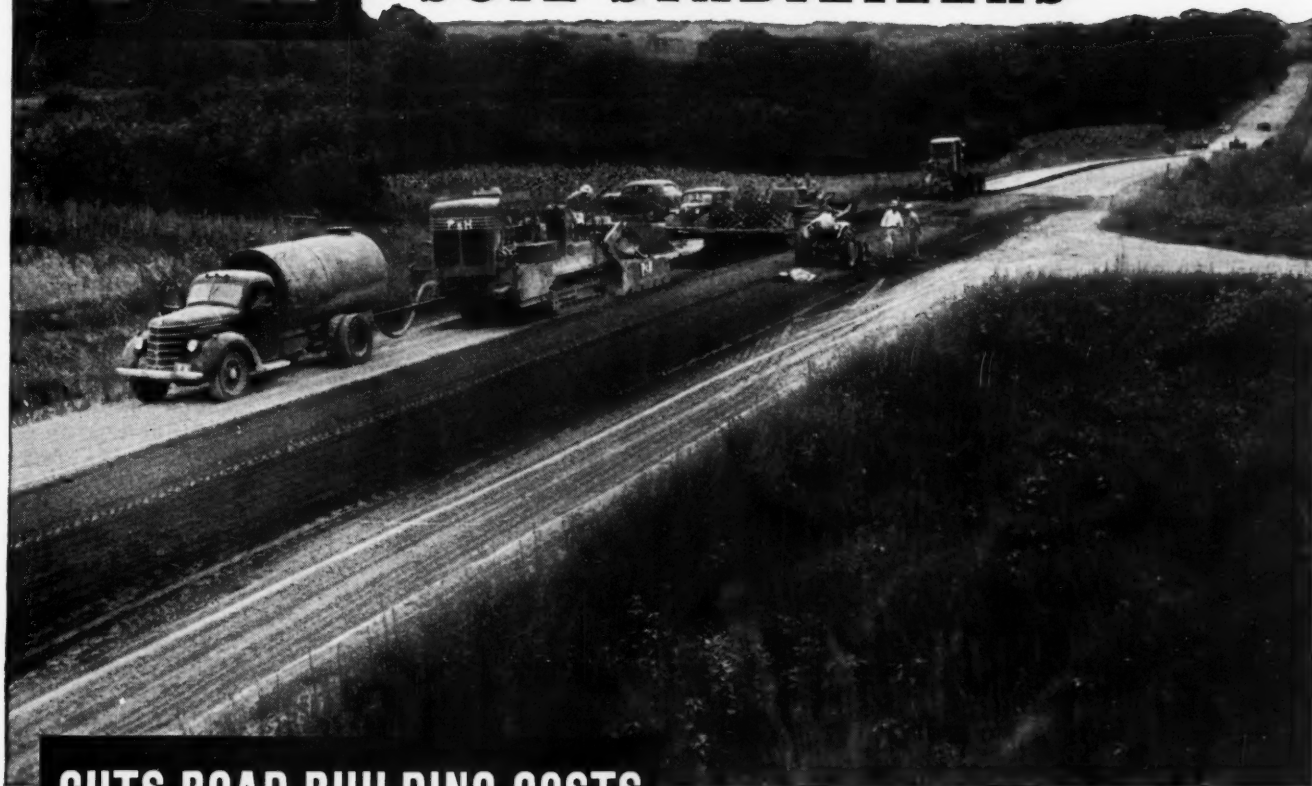
CHICAGO 39, ILLINOIS





**P&H**

## **SINGLE PASS SOIL STABILIZERS**



### **CUTS ROAD BUILDING COSTS**

**9 $\frac{1}{20}$  miles of soil cement road in 20 days!**

In state after state, wherever P&H Single Pass Soil Stabilizers are on the job, new road-making economy like this results — excellent, all-weather surfaces are made more quickly.

This Iowa highway of over 9 miles was completed in only 20 working days. The road is 24 feet wide and was processed to a depth of 6 inches. Maximum production, even with a green crew, was 1000 sq. yds. per hour.

This one machine in one pass with just one operator performed all stabilizing operations — enabling the contractor to meet specifications exactly and produce a road of predetermined load carrying capacity.

Making maximum use of native materials, the P&H Stabilizer shaves and pulverizes these, blends, maintains true sub-grade, applies liquid, final mixes, and spreads to a uniform depth — and does it rapidly.

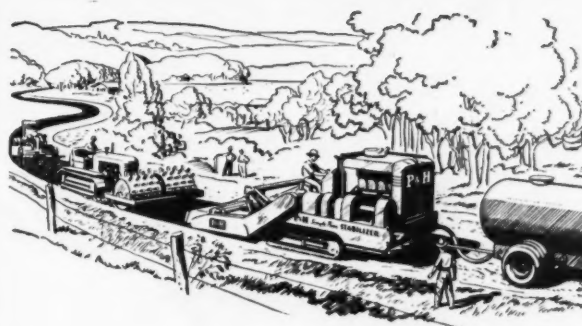
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STABILIZERS**

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EXCAVATORS • ELECTRIC CRANES • ARC WELDERS • HOISTS • WELDING ELECTRODES • MOTORS



### **FACTS ABOUT THE JOB**

**LOCATION OF PROJECT**—Highway 37, Monona County, Iowa — from Turin to Soldier.

**LENGTH OF PROJECT** — 9.053 miles.

**WIDTH OF ROADWAY** — 24 feet (3 lanes of 8 ft. each).

**DEPTH OF TREATMENT** — 6 inches, compacted.

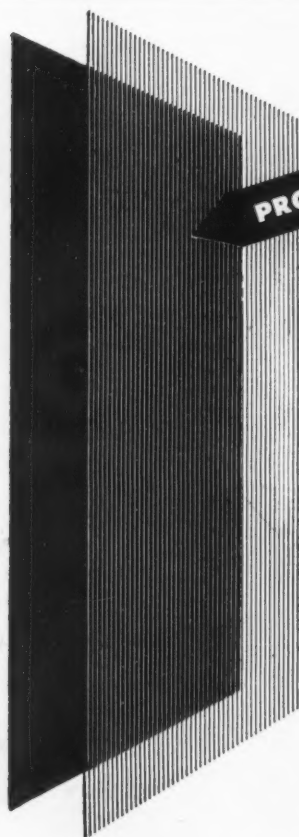
**TYPE OF SOIL** — Silt (Loess)

**STABILIZING AGENT** — Cement (10% by volume).

**RATE OF PRODUCTION** — Over 6,300 sq. yds. per working day average.

If you build secondary highways, streets, base courses, airport runways, etc., it will pay you to investigate the performance of the P&H Single Pass Soil Stabilizer under conditions similar to your own. Ask for the facts.

**New full-color, sound motion picture on P&H Stabilizer now ready. Write for information.**



**PROTECT AND SAVE CONCRETE FORMS...**

coat them with **PLASTIGLAZE**

Plastiglaze is a clear, fast air-dry liquid plastic of the polyester resin family. It can be brushed, sprayed, or dipped. Plastiglaze penetrates and seals plywood or common lumber. It forms a hard high gloss finish, resistant to water, alkalis and mild acids.

Plastiglaze coated forms may be used over and over again without deterioration. Plastiglaze has been used successfully for coating wood forms in bridge, home, and other concrete construction.

For more information, write:

**CALRESIN CORPORATION**  
CULVER CITY, CALIFORNIA

PLASTITOOL • PLASTIFLEX • PLASTIFORM • PLASTIGLAZE

**The LOAD SEEMS Lighter!**

Yes, sir—the load really seems lighter when it's carried in one of these easy-wheeling Sterling barrows. For these sturdy Sterlings are equipped with smooth-running anti-friction bearings. Scientifically designed... well-balanced... actually 80% of the load is carried by the wheel; only 20% by the operator. While deliveries are still retarded, due to the material situation, we'll make every effort to serve you as soon as conditions permit.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

**Sterling**  
WHEELBARROWS



Look for this Mark of  
STERLING Quality

(For copies of bulletins listed, use coupon, p. 120.)

**610**

**WIRE ROPE MANUFACTURE** — Booklet shows various processes of making wire rope from wire rods through wire and rope mills. Story is presented in pictures with short captions. — Macwhyte Co., Kenosha, Wis.

**611**

**STAINLESS STEEL DATA** — An entirely new group of data has been collected and presented in this new 36-page 8½x11 1-1 in. handbook. Many innovations have been made for comparing qualities, characteristics, uses, mechanical, physical, electrical, magnetic, heat resisting and corrosion resisting properties of stainless steels. — Alloy Metal Wire Co., Inc., Prospect Park, Pa.

**612**

**POWER CRANES** — A 16-p. illustrated booklet contains 46 photographs showing different material handling jobs by both rubber tired and crawler mounted cranes, and depicts use of 15 typical attachments, including clam-shell and dragline buckets, electric magnets, hooks, slings and tongs. — The Thew Shovel Co., 1404 Terminal Tower, Cleveland, Ohio.

**613**

**BRIDGE FLOOR** — Illustrated folder describes corrugated metal plank 12 in. wide and 3 in. deep which are welded to the stringers, greatly stiffening and strengthening entire bridge structure. Application of bituminous surface provides smooth, non-skid roadway and continuity between bridge and highway. — The Toledo Bridge Flooring Co., Byrne Road, Toledo 9, Ohio.

**614**

**STAINLESS STEEL PIPE** — Bulletin discusses application of stainless steel pipe, tubing and fittings where corrosion is encountered. Pictures show fittings as they actually appear with sectional diagrams of flanged and screwed fittings. — John B. Astell & Co., 90 West Broadway, New York 7, N. Y.

**615**

**WELDABILITY DIRECTORY** — (8-p. pamphlet in tabular form) Welds are broadly classified by groupings of alloys and metals in widest use together with lowest feet ranges permissible in welding for exact service requirements. Also mentions recent developments, including the arc-vapor cutting tool known as Cut Trode. — Electric Welding Alloys Corp., 40 Worth St., New York 13, N. Y.





"I've driven 'em all, and this new REO is the gal for me. You ought'a see the way the boss smiles when he looks her over. She's all truck, all the way. Take a look at that whopping big frame. The famous Gold Crown engine has plenty of power...smooth as a kitten. That's our new REO!"



"Sure the boss sings! He knows every REO has 'More-Load' design—more payload per inch of wheelbase and a shorter turning radius. The boss says 'More-Load' design means more dough for him. (P.S. Drivers can deliver goods faster and easier with REO's smoother handling.)"



"I'm no grease monkey but the maintenance gang says, 'We really get to that REO Gold Crown engine in a hurry! Makes us look good when we get a REO out of maintenance so quick!' O.K., add it all up—quicker service, faster delivery, full payload—spells profit!"

## She's my best gal ...and the boss's, too!

**What's your job?** Interstate hauling, logging, door-to-door delivery? Whatever you do with a truck, there's a REO to do it. REO Engineers know your needs differ from other operators'. So you select your REO from a wide

choice of tractor and truck chassis... with a variety of engines, wheelbases and cab-to-axle dimensions.

**When dealing** with REO you're working with truck specialists. Complete service is available at every REO outlet

... dealer, distributor and factory branch. Stop in or write for specifications of the new 1948 REO models. It's an invitation to check REO "More-Load" design before you order any truck. REO MOTORS, Inc., Lansing 20, Mich.



These great REO beauties, shown, handle all light and medium loads—are ideal for short hauls and long. On left, REO Model C-21 straight truck, G.V.W. to 21,000 lbs. At right, REO Model C-22 tractor-trailer, G.V.W. to 38,000 lbs.

"REO sure thought about safety in these new models. Plenty of see-easy windshield and a great rear window. They've put extra safety in those stop-on-a-dime brakes, too! And remember, at the A.T.A. National

Truck Rodeo, all first and second place winners drove REO trucks.

"The shorter wheelbase and easy maneuverability you get with 'More-Load' design makes REO a winner with operators, drivers and maintenance men."

**Check REO "More-Load" design before you order any truck**

# REO

TRUCKS AND BUSES



## RUD-O-MATIC TAGLINE

**Provides positive, steady tension — holds buckets steady under all working conditions.**

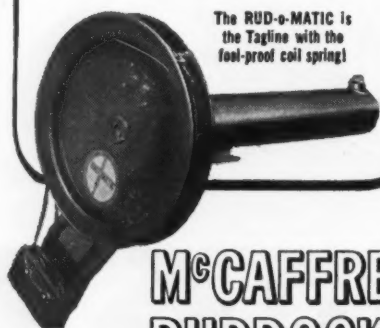


**Spring tension holds buckets steady. No weights, pins, tracks, or carriages. Cable saving more than pays for RUD-o-MATIC. Compact—easily installed. Eight models to fit all bucket sizes.**

RUD-o-MATIC Taglines are used as standard equipment by most crane manufacturers. Spring tension is powerful enough to hold a clam shell bucket steady. Operates with boom at any angle. Compact—it can be installed in less than thirty minutes. No pins, weights, tracks, or carriages to wear or be replaced. Taglines are complete with fairlead U bolt clamping plates, and cable attached. Immediate delivery—see your equipment dealer—or write—

• Dealers—selected territories in Midwest and Northwest are still open. Write for all details.

RUD-o-MATIC combination Magnet Reel and Tagline . . . operates on spring tension principle with tagline attached to magnet to steady—and electric cable fastened to magnet connections with all slack needed to prevent cable from being pulled or jerked loose from connections. Exclusive with RUD-o-MATIC.



The RUD-o-MATIC is the Tagline with the fool-proof coil spring!

**McCAFFREY  
RUDDOCK  
Tagline**  
Corporation

2131 East 25th St., Los Angeles 11, Calif.

## EQUIPMENT MEN

*and Their Companies*

*Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:*

**HOME OFFICE CHANGES** — A. N. Morton and A. C. Fetzer have been elected vice - presidents of **Mack Trucks, Inc.** . . . W. F. Mitchell, Wyandotte, Mich., has been appointed assistant vice-president of the **Pennsylvania Salt Mfg. Co.** . . . G. F. Clipsham has been named assistant to the president of the **Lincoln Electric Co.**, Cleveland, Ohio . . . Louis Siegel has been appointed manager of the aluminum division of the **Levinson Steel Sales Co.** . . . A. F. Hutcheson has been appointed manager of the Anthracite district office of the **Atlas Powder Co.** at Tamaqua, Pa.

Some new officers have been elected by the **Rockwell Mfg. Co.**, Pittsburgh, Pa., as follows: **J. E. Ashman**, vice-president and controller; **E. W. Meyers**, secretary; **M. J. Carl**, treas-

## Meet The Lightweight TUNNEL CHAMP!



On a pound-for-pound basis ARMCO Tunnel Liner Plates are in a class by themselves. They save you money and speed the job.

These sturdy plates are designed for utmost strength with the least possible weight. One unskilled workman can carry, hold and bolt into place an ARMCO Liner Section. Only a structural wrench is needed. Labor costs are low and the job goes fast. Less bulk also means less excavation, and storage requirements are smaller. With ARMCO Plates you buy no excess metal, and this keeps job costs down.

Consider tunneling that next job with the aid of ARMCO Tunnel Liner Plates. You'll find it the simplest, most inexpensive way you ever saw to install conduits, sewers and similar structures. The hazards and inconvenience of open trenches are avoided and business above ground goes on as usual. Write for prices and complete information on your specific needs. Armco Drainage & Metal Products, Inc., 1965 Curtis Street, Middletown, Ohio.

**ARMCO  
TUNNEL LINER PLATES**



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SYSTEMS**

**JETTING  
PUMPS**

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**GRIFFIN WELLPOINT CORP.**

881 EAST 141st ST. • NEW YORK 54, N. Y.  
Phone: MIllrose 5-7704-5-6

urer; Paul A. Wick and I. C. Rowe, asst. secretaries . . . J. H. Coover has been promoted to manager of production and research by **D-A Lubricant Co. Inc.**, Indianapolis, Ind. . . . **J. Donald Rollins** has been promoted to chief engineer of the Gary Works, **Carnegie-Illinois Steel Corp.** . . . At the **Louis Allis Co.**, Milwaukee, Wis., **Louis Allis, Jr.**, has been made vice-president in charge of sales; **Frank O. Kovich**, vice-president in charge of manufacturing; and **T. R. Wieseman**, vice-president in charge of engineering. **C. G. Skidmore** is sales manager, and **J. H. Daganhordt**, chief engineer . . . **Fred H. Johnson** has been appointed an assistant chief engineer of **Carnegie-Illinois Steel Corp.** . . . **Harvey W. Rockwell** is chief engineer of **La Plant-Choate Mfg. Co.**, Cedar Rapids, Ia. **Charles G. Schmidt**, of the **Ohio Machinery Co.**, equipment distributors of Cleveland, has been appointed manager of that company's Columbus (Ohio) office. **Thomas H. Taylor**, general sales manager, recently was elected president of the **Northeastern Ohio Distributors Association**, an affiliate of the AED.

**Boyd Allen** has been appointed staff manager for customer relations of the building products division, **Johns-Manville Corp.**

**SALES STAFF CHANGES**—**Le Roi Co.** has opened a central district sales office at 6619 W. Mitchell St., Milwaukee, Wis., with **Norman M. Sedgwick** as manager . . . **Edwin H. Johnson** is sales manager of the mining division of **Kennametal, Inc.**, Latrobe, Pa. . . . **H. H. Bullen** of Chicago is now manager of western district electrical products sales for the **American Steel and Wire Co.** . . . **D. A. Fassas** has joined the sales force of **Pennsylvania Refining Co.**, Cleveland, Ohio . . . **R. L. Cone**, West Hartford, Conn., is sales head of the **R. W. Bleiler Equipment Co., Inc.**, in Litchfield Co., Conn., and in western Massachusetts. . . . **John N. Harper** will represent **American Wheelabrator & Equipment Corp.**, Mishawaka, Ind., in the Pittsburgh, Pa., territory . . . **C. W. Bird** is at Shreveport, La., in charge of sales and service for the **Bird-Archer Co.**, New York, in the East Texas and southern Arkansas area . . . **Auwell Fogarty** is assistant to **Fred T. Wiggins**, western region sales vice-president, **Universal Atlas Cement Co.**

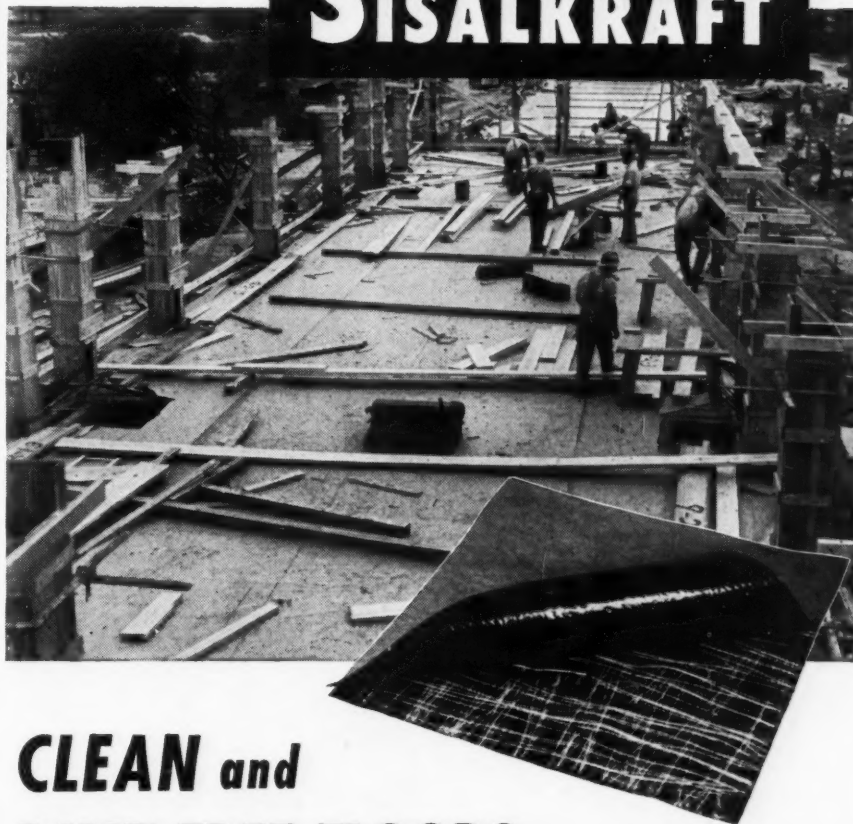
**O. B. Wilson** is industrial manager for the eastern sales region of the Brown Instrument division of **Minneapolis-Honeywell Regulator Co.** . . . **E. S. Banghart** is manager of the N. Y. sales district of the **Pennsylvania Transformer Co.** of Pitts-

(Continued from page 158)

**MAXIMUM  
PROTECTION  
MINIMUM COST**

with

**SISALKRAFT**



**CLEAN and  
DUST-FREE FLOORS  
at reduced cost!**

*SISALKRAFT, reinforced with over half a mile of tough, steel-like sisal fibres per sq. yd., used for curing and protection of 400,000 sq. ft. monolithic concrete floors of apartment building.*

SISALKRAFT is so strong it furnishes positive protection from debris and construction stains and prevents marring. Yet it is so light-weight, it can be rolled into place easily and be removed quickly. The SISALKRAFT method of curing and protecting concrete is automatic — no watching, no sprinkling, no other covering.

The SISALKRAFT method is a "natural" for you on single-story and multi-story jobs, also for driveways, sidewalks and roads.



**The SISALKRAFT Co., 205 WEST WACKER DRIVE, CHICAGO 6, ILL.**

Manufacturers of . . .

SISALKRAFT • SISALATION • COPPER ARMORED SISALKRAFT • FIBREEN • SISALTAPE



## POWDER OPERATED CONSTRUCTION TOOL

**Drives Threaded Studs  
3 Inches Into**

**Concrete Instantly!**



.38 Cal. (top)  
.22 Cal. (bottom)

*Thousands of DRIVE-IT Powder Power Tools are now in constant use from coast to coast.*

### 3000 PERCENT FASTER

DRIVE-IT does in seconds what used to require hours. Eliminates drilling, hammering, compressors, electricity, cords, expansion bolts. Anchors anything to concrete, masonry or steel in a split second.

### HOW IT WORKS

DRIVE-IT derives its power up to 25 tons from a small powder charge encased in a standard .38 or .22 cal. cartridge. The desired anchor stud and cartridge are placed in the tool. The DRIVE-IT muzzle is forced vigorously against the work and at the same time the safety catch is released. This detonates the charge, and drives the stud with pile-driver force into steel or concrete. DRIVE-IT studs in ordinary concrete will hold the weight of the heaviest automobile.

### ABSOLUTELY SAFE

DRIVE-IT is the original power-operated tool. It functions without recoil shock . . . is as safe as an ordinary carpenter's hammer.

### UNLIMITED APPLICATION

Thousands of contractors, sub-contractors, and maintenance departments use DRIVE-IT tools to anchor wood sleepers to concrete; to "bolt" machinery; to hang metal lath, pipe, switch boxes, etc. See DRIVE-IT for yourself. Write for name and address of your nearest distributor, and full information.

**POWDER POWER  
TOOL CORPORATION**



P. O. BOX 1610 (DEPT. A)  
PORTLAND 7, OREGON

(Continued from page 157)

burgh, Pa. . . . A N. Y. office at 37 Wall St., has been opened to handle Atlantic district sales of Peerless Pumps, with R. C. Engemoen as manager. . . . Emmart La Crosse, Jr., is district sales manager of a new Louisville, Ky., sales office of Link-Belt Co. . . . Baxter Pearson and W. W. Hayes on the staff of the new sales office of Monsanto Chemical Co. at 421 Southwest Sixth Ave., Portland, Ore. . . . John R. Hickman is director of field sales personnel of The B. F. Goodrich Co., Akron, Ohio. . . . C. M. Binney has been made assistant district manager of the New York sales district of the Allegheny Ludlum Steel Corp. . . . Murray D. Shaffer has been appointed director of sales and research consultant for the Buffalo-Springfield Roller Co. of Springfield, Ohio. . . . Dale D. Spoor has been made sales promotion manager of Air Reduction Sales Co. and Russel S. Schmidt succeeds him as dealer sales manager. . . . John E. Heuser is now assistant sales manager of the Le Roi Co., Milwaukee, Wis. . . . The Black & Decker Mfg. Co., Towson, Md., has made G. M. Buchanan manager of a new branch at Charlotte, N. C.; J. P. Spain is branch manager at Baltimore, Md.; and A. S. Boehm is branch manager at San Francisco.

(Continued on page 160)



### PIPE WRENCHES

Stronger for size, because handles are drop forged with heavy forged-in lugs to take up side strain. Handier, because there is no cumbersome nut housing, because they are finely balanced tools. See and "feel" this better pipe wrench with its 10 improved features before you buy. Write for Pipe Wrench circular and name of your local "ARMSTRONG BROS." distributor.

Stocked by Leading Tool Departments

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5234 W. Armstrong Ave., Chicago 30, U.S.A.

Eastern Whse. and Sales: 199 Lafayette St., New York 12, N. Y.  
Pacific Whse. and Sales Office:  
1275 Mission St., San Francisco  
3, Calif.



*The findings of  
the last ten years'  
research in timber  
engineering*

## TIMBER ENGINEERS' HANDBOOK

Edited by HOWARD J. HANSEN, Professor of Mechanics, University of Florida

*Timber Engineers' Handbook* presents the results of the research of the past ten years on the use of wood as a structural material. It contains the latest information necessary for the design of wood structures, including the properties of wood, grading specifications, working stresses, preservatives, fastenings, design formulas and methods. The discussion is not limited to a few species, but covers all the woods in use in this country.

### INVALUABLE TO THE ENGINEER

In this book, Professor Hansen has included all available formulas for timber design and presents examples showing how to design a given item step-by-step. He has illustrated the book profusely with charts and tables, and has devoted an entire section to the terminology of timber engineering and explanations of common abbreviations employed in the field. A unique feature of the book is the section in the appendix consisting of 494 pages giving the most recent stress recommendations of the National Lumber Manufacturers Association.

**Contents:** Factors Affecting Strength; Grading Rules & Working Stress; Standard Terms & Abbreviations; Sizes and Properties of Sections; Weights; Loadings; Simple Beams; Continuous Beams; Trussed Beams; Columns-Solid; Spaced Columns; Combined Stresses; Fastenings; Trusses; Glued Laminated Construction; Plywood; Floor Systems; Buildings; Poles and Piling; Protection & Maintenance.

1948 846 Pages \$10.00

### ON APPROVAL COUPON

JOHN WILEY & SONS, INC.  
440 Fourth Ave., New York 16, N. Y.  
Please send me, on ten days' approval, a copy of Hansen's **TIMBER ENGINEERS' HANDBOOK**. If I decide to keep the book, I will remit price plus postage; otherwise I will return the book postpaid.

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**BARNES PUMPS give me 33,000 for 1 odds . . .**

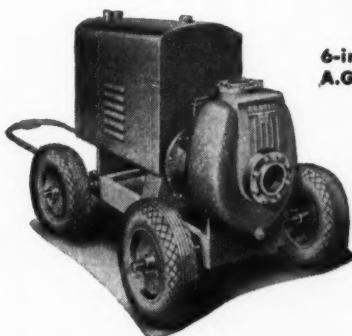
**1 1/2-in. — THE FLASH — (3M)**  
**Rating 3,000 G.P.H.**

This dynamic Barnes portable meets the need for an easily moved and quickly set-up light-weight pumping unit. Weighs only 50 lbs. Automatic prime. Base mounted. Bail-type handle makes easy carrying by one person.



**6-in. — THE MASTER — (90M)**  
**A.G.C. Rating 90,000 G.P.H.**

Here's a reliable pump for heavy work under the roughest conditions. Ideal for contractors demanding the utmost in pump capacity and non-stop performance. Put it to work on any job—and it delivers the goods!



**BARNES MANUFACTURING CO.**  
**MANSFIELD, OHIO**

That's right! Not 1000 for 1! Not 10,000 for 1! But 33,000 gallons of water pumped for 1 gallon of gas used. That's the amazing economy of Barnes Automatics. That's filling 4 1/8 tank cars on a gallon of fuel. That's what you call real performance and real economy. And it's yours when you use Barnes Automatic Centrifugals — the 33,000 for 1 Pumps.



**MAIL THIS COUPON TODAY!**

Barnes Manufacturing Co.  
 607 North Main Street  
 Mansfield, Ohio

Please send me descriptive literature on pumps marked below:

— Gasoline-engine driven automatic centrifugals  
 — Universal-belt driven automatic centrifugals  
 — Diaphragm Pumps

Name \_\_\_\_\_  
 Firm \_\_\_\_\_  
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 City \_\_\_\_\_

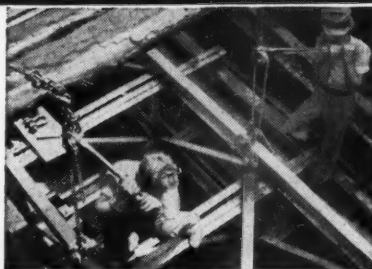
# Want Safe, Easy Pulling?

## There's a **COFFING** **SAFETY-PULL HOIST** (RATCHET LEVER TYPE) **FOR EVERY JOB**

You'll get more work done—faster and with greater safety—when you use a Coffing Safety-Pull Ratchet Lever Hoist for lifting, pulling or load binding. The Safety-Pull is simple in design and extremely easy to operate—yet durable and rugged in construction to handle heavy duty jobs day after day. Choose the hoist to meet your specific needs from the nine models available—with capacities from  $\frac{3}{4}$  to 15 tons! You'll be ahead on time, on manpower . . . on safety.

### SEND FOR BULLETIN DRL-5

**OTHER COFFING PRODUCTS** — Electric Hoists  
• Differential Hoists • Hoist-Jacks • "Mighty-Midget" Puller • Spur-Gear Hoists • Load Binders • Trolleys.



Safety-Pull Hoists moving steel inserts with safety and ease

### Why **COFFING** Is the **Better Hoist**

- Hooks of drop forged, heat treated steel.
- Dual ratchet and pawl assembly for maximum safety.
- Replaceable "Safety-load" handle will bend before any other part of the hoist gives.
- Handle is reversible—Hoist operates in any position.
- Every model factory tested to 100% over rated capacity.

**THE COFFING HOIST COMPANY**  
DANVILLE, ILLINOIS

LIGHTER

STRONGER

## WELLMAN

*Williams Type*

## BUCKETS

Stronger because they're constructed of **welded rolled steel**  
... *lighter* because non-essential weight has been eliminated.

Wellman buckets meet every requirement of heavy service with longer life and lower cost! A type for every service:

Multiple Rope, Power Arm, Dragline, Power Wheel, Special Service.  $\frac{3}{8}$  to 16½ yd. capacity.

SEND FOR BULLETIN

**THE WELLMAN ENGINEERING COMPANY**  
7017 CENTRAL AVENUE • CLEVELAND 4, OHIO

(Continued from page 158)

transferred from the Baltimore, Md., office of **The Jeffrey Mfg. Co.**, Columbus, Ohio, to Chicago, Ill., as district manager of the conveyor division . . . **A. E. Duke**, district manager, supervises all West Coast activities of the **Twin Disc Clutch Co.** of Racine, Wis., which has recently opened a new branch sales engineering office in Los Angeles, Calif. . . . **R. W. Head** is district sales manager for the **Marion Power Shovel Co.** of Marion, Ohio, at 4534 Travis St., Dallas 5, Tex. . . . **D. J. C. Copps** has been appointed Chicago district sales manager for the Explosives Dept., **Atlas Powder Co.** . . . **Thomas H. Monaghan** has been appointed assistant to the president and sales manager of the **Universal Concrete Pipe Co.**, Columbus, Ohio.

**DEALER APPOINTMENTS**—**Hardinge Co., Inc.**, York, Pa., has appointed the **Auto-Filtration Co.** of Montreal sales agent for Quebec and the maritime provinces and Newfoundland . . . **Sidney C. Small** of Los Angeles, Calif., is sales engineer of the **A. P. Smith Mfg. Co.**, East Orange, N. J., in the Arizona and southern California territory . . . **The Island Supply Co.**, Grand Island, Neb., has been appointed distributors in central Nebraska for **Hobart Brothers Co.**, Troy, Ohio . . . **Industrial Air Products Co.** has been appointed exclusive electrode distributor in Oregon for the **Wilson Welder & Metals Co., Inc.**, New York.

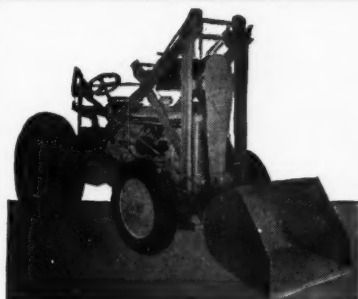
**Hardinge Co., Inc.**, York, Pa., has appointed **Fred Gibbs Engineering Sales Corp.** agent for its products in the New England states . . . **J. H. Tiller, Jr.**, has been appointed district representative on motor grinders and rollers in the south central area for **The Galion Iron Works & Mfg. Co.**, Galion, Ohio . . . **Ferguson Supply Alberta, Ltd.** of Calgary, Alta., has been appointed a distributor for the **Euclid Road Machinery Co.** of Cleveland, Ohio . . . **The Henry P. Thompson Co.**, 416 Schmidt Bldg., Cincinnati, Ohio, has been appointed sales and engineering representative of **Cochrane Corp.**, Philadelphia, Pa. Serving this territory are **Herbert H. Haas**, **John S. Bower** and **Kenneth C. Matthews** . . . **Harold A. Joep**, Wethersfield, Conn., is sales representative for the western half of Connecticut for the **Hendrick Mfg. Co.**, Carbondale, Pa.

**PERSONALITIES** — **Pardee H. Frank**, service manager of **The Timken Roller Bearing Co.** retired Feb. 1 after 27 years of continuous service, and **Wm. A. Fowler**, general manager of the Columbus plant has also retired . . . **L. B. McKnight** and **O. W. Carpenter** have been elected directors of **Chain Belt Co.** . . . **Air Reduction Pacific Co.** has appointed

these vice-presidents: **L. A. Hamilton**, Seattle; **E. W. MacCorkle, Jr.**, Portland, Ore.; **H. W. Saunders**, San Francisco; and **H. A. Hoth**, Los Angeles . . . **James M. White** has resigned as vice-president of manufacturing, **Allis-Chalmers Mfg. Co.**, Milwaukee, Wis., but will remain for six months in an advisory capacity to President Walter Geist . . . **Eugene W. Stetson, Jr.**, of Green Farms, Conn., has been elected a director of **The Yale & Towne Mfg. Co.** . . . **Wm. J. Reardon** of **Reardon Industries**, Cincinnati, Ohio, has been appointed a trustee of the Ohio Turnpike Committee.

**H. H. Scharff, Jr.**, has been appointed factory representative of the **Clyde Iron Works, Inc.** in the mid-west district. He is at 224 So. Michigan Ave., Chicago, Ill. . . . **Carl H. Bauer** has been made assistant to the president of **The Celotex Corp.**, Chicago, Ill. . . . **Raymond B. Crean** has been elected assistant vice-president, production, of the **Baldwin Locomotive Works**, Philadelphia, Pa. . . . **Stanley Macomber**, president of **Macomber, Inc.**, Canton, Ohio, has been made a life member of the American Society of Civil Engineers . . . **Charles G. Schmidt** of the **Ohio Machinery Co.**, Cleveland, Ohio, has been appointed manager of that company's

(Continued on page 162)



## FRONT END LOADERS

for Industrial Tractors  
Extensible Booms—8' Lift  
1/2 and 5/8 cu. yd. Capacity

### Other Products CONCRETE VIBRATORS

Gasoline Engine and  
Electric Motor Driven Models

### HEATING KETTLES

for Asphalt and Tar

### AGGREGATE DRYERS

for Stone and Sand

### ASPHALT PLANTS

Portable — Stationary  
WRITE FOR CIRCULARS

**White Mfg. Co.**

ELKHART

INDIANA



## CONSTRUCTION MEN AT WORK

use



## INDUSTRIAL TRACTORS

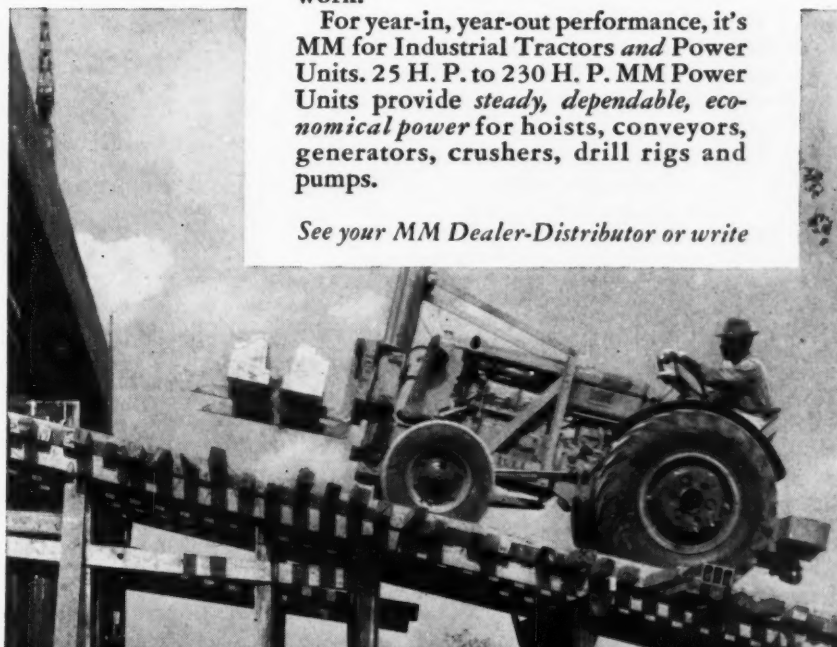


Contractors' preference for MM Industrial Tractors is accounted for by MM's rugged dependability, all-round utility and outstanding economy!

MM Industrial Tractors are Built to Do the Work . . . all kinds of work . . . easily, economically, profitably! Winch, front-end loader, crane, rotary broom, pull-behind scraper, dozer blade, wide range of tire sizes to suit all types of work and other engineered attachments equip the 27 H. P. RTI and the 49 H. P. UTI for a wide variety of construction work.

For year-in, year-out performance, it's MM for Industrial Tractors and Power Units. 25 H. P. to 230 H. P. MM Power Units provide steady, dependable, economical power for hoists, conveyors, generators, crushers, drill rigs and pumps.

See your MM Dealer-Distributor or write



**MINNEAPOLIS-MOLINE**  
POWER IMPLEMENT COMPANY  
MINNEAPOLIS 1, MINNESOTA



## POWER IN THE PULL



Extracting piles is certain and automatic with the plus power produced by the Vulcan Pile Extractor. All claims made for its efficiency, durability, speed and economy have been justified through two decades of heavy duty service on the job.

This compact machine, designed for pulling sheet steel, wood, concrete, H-beam and pipe piles, has only one moving part, requires no adjustments and can't get out of order. It's built in three sizes to handle any pile extracting job—No. 200 for pulling less difficult piles, No. 400 for heavier jobs, and No. 800 for extracting the heaviest longest and most difficult piles.

Write today for complete details on the rapid, dependable action of the Vulcan Pile Extractor.

**VULCAN IRON WORKS**  
Since 1852  
331 North Bell Avenue

Chicago 12 --- Illinois

(Continued from page 161)

Columbus office . . . **W. H. Holbert** has been appointed manager of the Three Rivers, Mich., plant of **Fairbanks, Morse & Co.**, Chicago, and **J. R. Walsh** of the Stuttgart, Ark., works . . . **Hans Bohoslav** has joined **Engineering Controls, Inc.**, Los Angeles and New York as vice-president in charge of engineering . . . **Harold M. Schudt** has been appointed general manager of the Gadsden, Ala., works of the **Allis-Chalmers Mfg. Co.** . . . **Fay Brainard** is special assistant to **Eugene Caldwell**, general manager of the **Hyster Co.**, Portland, Ore.

**MISCELLANY** — **Republic Steel Corp.**, Cleveland, Ohio, has created a public relations department, according to **C. M. White**, president. Heading the new department is **E. S. Bowerfind**, who for the last 14 years has been associated with Hill and Knowlton of Cleveland. Other members of the new department will be **Henry W. Hopwood**, assistant-director, formerly with Hill and Knowlton, and **William D. Martin**, editor of **Republic Steel's** employee magazine, **Republic Reports**. . . A total of 172,405 new Chevrolet "Advance-Design" trucks were sold before Jan. 20, and are now in use. . . The formation of an industrial and utility

(Continued on page 164)

## Cost-Minded?

You'll find all the basic construction cost data you need for . . .

estimating  
planning  
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between the covers of one outstanding reference book, the

## 21st Annual CONSTRUCTION COSTS YEARBOOK

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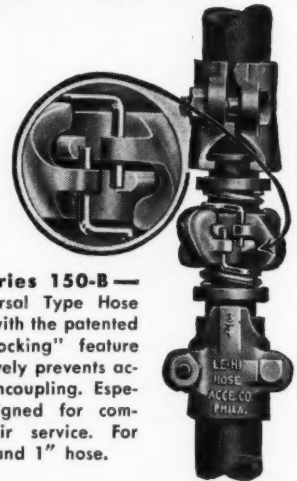
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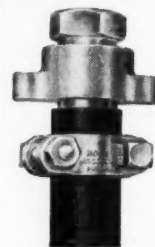
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**LE-HI Series 150-B** — The Universal Type Hose Coupling with the patented "Safety-Locking" feature that positively prevents accidental uncoupling. Especially designed for compressed air service. For  $\frac{1}{2}$ ",  $\frac{3}{4}$ " and 1" hose.

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**LE-HI Series 200-G or W** — "Light Type" Air Hammer Hose Couplings. For lighter rock drills, jack hammers, sinkers, tampers, etc. Fast, easy coupling and uncoupling. Fully interchangeable. For  $\frac{1}{2}$ " and  $\frac{3}{4}$ " hose. Available in ground joint and washer types.

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## A Revolutionary New Method of Hauling and Placing AIR-ENTRAINED CONCRETE!

### The Hercules Aircreter



NO REJECTS  
EVERY LOAD  
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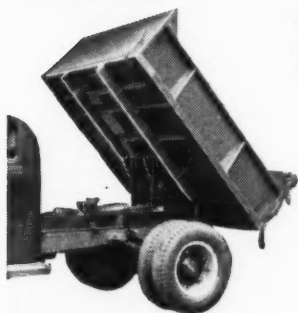
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Here's the modern method of delivering and placing air-entrained concrete! With the HERCULES AIRCRETER, every load is identical, rejects are eliminated, because the AIRCRETER delivers premium quality, uniform-mix concrete, exactly as it is produced at the central mixing plant, under absolute control. The lightweight construction of the AIRCRETER also permits more direct pours, cutting time and labor costs on every job.

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Heavy Duty unit, equipped with Hercules Type X Hoist, for installation on straight or drop-frame trailers. Square and round-nosed models.

LIFT WITH EASE—  
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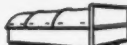
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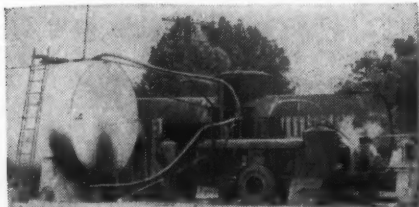


LIME  
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POWER CHUTES  
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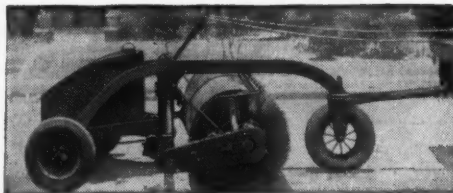
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- GRACE
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With the Rapid Fire Combination heater, two units on one chassis are on the job — designed for pumping heavy asphalt and road oils under ALL conditions.

## GRACE 2-WAY AXLE-DRIVEN SWEEPER

Simple transmission and pivoting mechanism assures easy operation of this multi-service sweeper. Brush, featuring long life bristles and steel shaft to eliminate warping, may be changed to sweep right or left at angles up to 30° in a few seconds.



For information write or wire...

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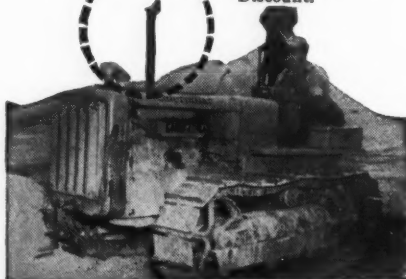
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STOPS MOISTURE FROM FALLING INTO TRACTOR EXHAUST

| No. | O.D. Exhaust | Retail |
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| 1   | 2 1/4"       | \$1.90 |
| 2   | 2 3/4"       | 1.90   |
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| 55  | 2"           | 1.90   |
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| 66  | 1 3/4"       | 1.90   |
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| 8   | 3"           | 2.50   |
| 9   | 3 1/2"       | 2.50   |
| 10  | 3 1/2"       | 2.50   |
| 11  | 3 1/2"       | 2.75   |
| 115 | 3 3/4"       | 3.00   |
| 12  | 4"           | 3.00   |
| 123 | 4 1/4"       | 3.00   |
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THE CAP THAT DOES NOT FORGET TO CLOSE Completely automatic—the "RAIN-CAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof — made of cast aluminum — can be installed in two minutes. F.O.B. Waterloo, Iowa

- Immediate delivery
- Liberal Dealer Discount.



Write Dept. CM.

# WATERLOO FOUNDRY CO., WATERLOO, IOWA

(Continued from page 162)

section of **Borg-Warner International Corp.** is announced, with headquarters at 321 West Lafayette Ave., Detroit, Mich. . . . **The Copolymer Corp.**, Baton Rouge, La., has started production of its new Ultipara rubber said to be very suitable for truck and passenger tires . . . **Merle J. Graham** has been appointed manager of the West Leechburg, Pa., plant of **Allegheny Ludlum Steel Corp.** . . . A proposal to change the name of **The American Rolling Mill Co.** to **Armco Steel Corp.**, will be submitted to shareholders on April 15. . . . **Brown Instrument Co.** has opened a new district office at 922 Dermon Bldg., Memphis, Tenn. . . . The 40th annual convention of the **American Concrete Pipe Assn.** will be held in New Orleans, La., March 11-13. . . . **Minneapolis-Honeywell Regulator Co.** has opened a new branch office at 1514 E. Central, Wichita, Kan., with **Lynn H. Johnson, Jr.**, as manager . . . **C. H. Rieman** is manager of the **Gardner-Denver Co.** branch office in Duluth, Minn., and **G. B. Daigh**, manager in Washington, D. C. . . . New **Mack Truck** appointments are: **C. E. Cole**, district manager in charge of the Los Angeles branch, at 1501 South Central Avenue; **Lawrence D. McLean**, district manager in charge of the Reading, Pa., branch, at 1212 Moss Street; **T. H. Jones**, district manager of the Charlotte, N. C., branch, at 1400 South Mint Street; and **William Dudde**, district manager of the Bronx, N. Y., branch, Leggett Avenue and Barry Street, N. Y. City.

All Zanesville, Ohio, operations of **The Timken Roller Bearing Co.** are being consolidated in 30,000 sq. ft. of manufacturing space at 2,300 Linden Ave. With few exceptions present prices on bearings will hold until June 30, 1948 . . . **Caterpillar Tractor Co.**, Peoria, Ill., has established a parts depot at 1,127 Chattahoochee Ave., N.W., Atlanta, Ga., and a similar unit will be opened in the spring at Shreveport, La. . . . "It's Your Move" is the title of a 16-mm. sound film released by the **Thew Shovel Co.**, Cleveland, Ohio . . . **Joseph T. Ryerson & Son, Inc.** has built a new steel service plant on 65th St. near the Oakland, Calif., end of the Bay bridge . . . **Marmon-Herrington Co., Inc.**, Indianapolis, Ind., is now in production on all-wheel-drive conversion for the new Ford models . . . **Flexible Tubing Corp.** has entered into the flexible tubing field at Branford, Conn. . . . **Pioneer Engineering Works**, Minneapolis, Minn., has received a certificate of appreciation for its contribution to the training of Latin American engineers. The award was made by the ARBA on behalf of the Inter-American Highway Engineering Conference . . . The Verona, Pa., plant of **Koppers Co., Inc.**, is now producing coated-metal sheets for use as siding and roofing in the building industry.



## Backhoes and Bulldozers

(Continued from page 108)

TD16 tractor with Heil bulldozer blade for backfilling.

This record was set on the Midland branch line on which Bass has a contract for 71,000 ft. of 36-in. and 15,000 ft. of 24-in. pipe. Average daily production on the 24-in. line was 25 sections of pipe laid in 9 hr. with a 15-man crew using a  $\frac{3}{4}$ -yd. Koehring back hoe Model 304, and a D4 Caterpillar bulldozer.

Groundwater on this section of line was controlled with a More-trench Wellpoint system, using two 8-in. pumps, and wellpoints spaced 10 ft. apart.

Total contract cost for the 78 mi. of prestressed concrete pipe is

(Continued on page 166)

## McKiernan-Terry SINGLE-ACTING PILE HAMMERS

For penetrating very dense substances and for driving concrete and other heavy mass piles, McKiernan-Terry Single-Acting Pile Hammers offer the contractor the choice of five standardized sizes . . . from size S3 with striking energy of 9,000 ft. lbs. up to this giant size S14—37,500 ft. lbs. of energy. For full information on McKiernan-Terry Single-Acting Pile Hammers write for Bulletin No. 57.

**McKIERNAN-TERRY  
CORPORATION**

Manufacturing Engineers  
14 Park Row, New York 7, N.Y.

Any of these authorized distributors  
will be glad to tell you more about the

# Moto-Paver



The proof of any paving equipment is in its performance. Moto-Paver, the complete traveling mixer and paver, has now been on the job for more than a year. The quality—and the cost—of the work it has done will make interesting reading for any paving contractor, highway official or engineer. A performance record, with typical cost table, will be sent on request. Address the factory, or see your nearest distributor listed below:

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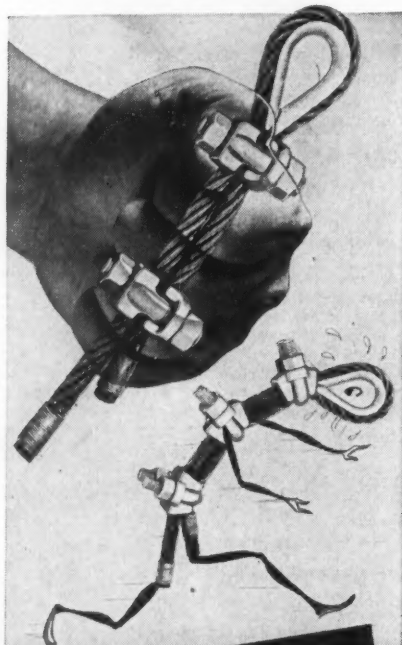
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"America's First Builders of Asphalt Mixing Equipment"

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...With The Laughlin  
"FIST-GRIP"  
SAFETY CLIP

Won't Crimp or Crush... rope lasts longer.

Simple, easy to put on... saves time, manpower.

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Super Grip... two clips do the work of three U-Bolts.

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THE THOMAS LAUGHLIN COMPANY  
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**LAUGHLIN**

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



(Continued from page 165)

\$5,200,000 for manufacturing the pipe including delivery to the job, and \$2,600,000 for installation—or an average of \$100,000 per mile for the pipe in place.

The project is under the direction of Alfred Eckert, manager, Saginaw-Midland water supply system. Alvord, Burdick & Howson, Chicago, are consulting engineers.

## Aluminum Panels

(Continued from page 109)

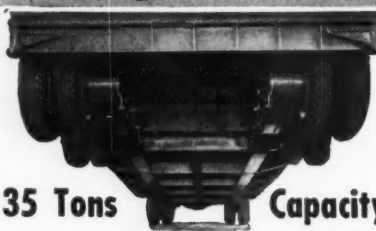
Alcoa alloy 14S-T6 extrusions, which were originally fabricated for the U. S. Army's ponton bridge program. All panels and sections were transported by truck to the bridge site in six loads.

The curbing is formed of 15-ft.

(Continued on page 168)

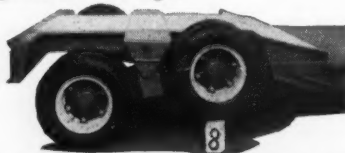
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Rocking Beam Trailer



35 Tons Capacity  
in only 8 feet of width  
Special construction affords an unusually low bed.

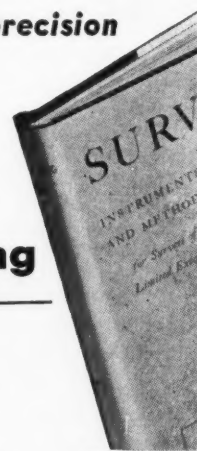
Trailer embodies characteristic features of Rogers proven design.



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a guide to precision

in  
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For Architects—  
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Here is a new manual to help you in all types of surveying in the field and shop. Whether you are aligning machinery, planning construction, setting a jig, or making a map, this book will show you the most accurate and rapid methods of surveying the job. The complete subject is covered thoroughly—from the care and use of the instruments and equipment, to practical methods for solving hundreds of specific problems.

## SURVEYING INSTRUMENTS and METHODS

For Surveys of Limited Extent

By PHILIP KISSAM

Associate Professor of Civil Engineering, Princeton University, Chairman, Executive Committee, Surveying and Mapping Division, ASCE. 384 pages, 261 illustrations, \$3.50

In this helpful guide you are taken carefully, step-by-step, through all phases of small area surveying. It shows in clear detail the use of the transit, level, alidade and other instruments, and explains how to use them in measuring angles and lines, computing slopes, setting gauge points on jigs, aligning shafts, leveling and centering work projects and in many other ways in the field and factory. This is a book by a practical surveyor, designed to make your work easier and more accurate.

Covered in detail in this book:

|  |                             |
|--|-----------------------------|
| Surveying instruments  | Profile leveling            |
| Surveying methods  | Line and grade construction |
| Precise measuring procedures   | Alignment in the shop       |
| The transit, alidade and level   | Triangulation               |
| Angle measurement  | Topographical surveying     |
| Bench mark leveling  | Technique of map-making     |
| Logarithms of numbers, trigonometric functions and stadia reduction tables |                             |

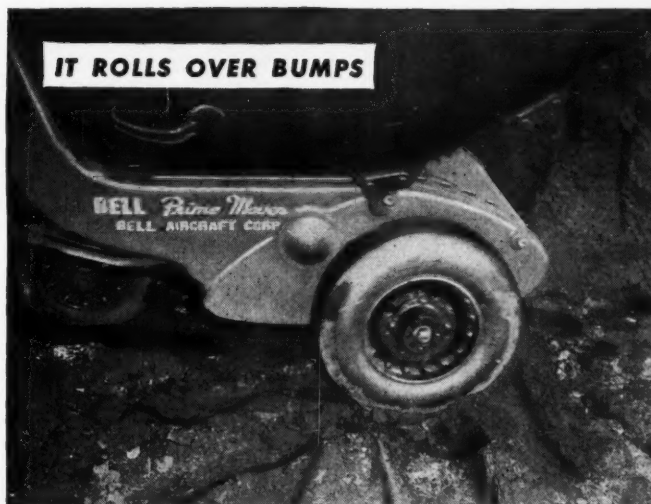
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**IT ROLLS OVER BUMPS**



**DUMPS MECHANICALLY**



**CLIMBS 20% GRADES FULLY LOADED**



**CONVERTS TO PLATFORM CARRIER**

● On any job where wheelbarrows are needed, it will pay you to investigate the new BELL Prime Mover for, with it, ONE man can move as much material as a four-man wheelbarrow gang.

Concrete mix, sand, gravel, fill . . . anything hauled in wheelbarrows . . . can be handled in loads up to half a

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Attachments, such as platform body, and a rugged 50-inch blade, make the Prime Mover highly useful for hauling "packaged" materials, pipe, brick, concrete blocks . . . or for simple grading

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We are compiling a wealth of operating data on construction applications of the Prime Mover. The coupon will bring you these facts by return mail.

Why not look into it now?

## FEATURES:

- takes half-ton loads up 20% grades
- bucket holds 10 cu. ft. . . 18 with sideboards
- beltless, chainless transmission
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- half-ton platform body available; also 50-inch "baby bulldozer" blade
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Please send me engineering and cost data on the Prime Mover, including users' experience on building and construction projects.

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## USE THESE AIDS TO BETTER *WORKING SAFETY* IN CONSTRUCTION



### M·S·A SKULLGARDS

Light weight, cool and comfortable to wear, these standard work hats of the construction industry are high-pressure molded of laminated bakelite—tough, resistant to fracture, and with high dielectric strength. Self-ventilated for coolness, Skullgards do not soften or deteriorate from exposure to weather, perspiration, oil or grease. Bulletin DK-13.



### M·S·A EYE PROTECTION

The full range of M.S.A. Protective Goggles guard eyes against job hazards. Spectacle-type goggles, chippers' goggles, welders' goggles and other types are sturdy, easy to wear and provide assured eye protection. Bulletin CE-29A.

### M·S·A SAFETY BELTS

Light, flexible and strong; furnished in shoulder-strap type which permits easy raising and lowering of workmen in confined places and through small openings—body pad type for workers on scaffolds, roofs, mountain-sides, etc., and special steel worker's safety belt. Made of high-tensile cotton webbing, with high quality hardware tested to 5,000 lbs. Write for details.



### M·S·A FIRST AID KITS

Sturdy steel All-Weather cases are equipped with molded gasket excluding dust, dirt and moisture—available in 10, 16, 24 and 36-unit sizes, each containing a complete assortment of unit-packaged first aid materials ready for instant use. Cases are equipped with brackets for wall or vehicle mounting. Descriptive details on request.

### M·S·A Clear-Vue DUSTFOE RESPIRATOR

Approved respiratory protection on dusty jobs—light in weight, easy to breathe through, comfortable to wear. Formable aluminum face-piece with molded face cushion assures snug fit; transparent plastic filter container shows filter condition at all times; filters are inexpensive, easily replaced. Bulletin CM-7.

### M·S·A CHEMOX\* OXYGEN BREATHING APPARATUS

Provides oxygen for breathing protection in highly gaseous or oxygen-deficient atmospheres—employing a replaceable chemical canister which generates oxygen as the wearer breathes, for a minimum period of 45 minutes. No high pressure valves or fittings; weighs only 13½ lbs. complete. Bulletin BM-8.

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### M·S·A EXPLOSIMETER

Accurately measures combustible gas hazards at the working place, with easy one-hand operation. Portable and sturdy, any workman can use it without special training. Large, legible dial; uses standard flashlight batteries. Bulletin DN-7.

### M·S·A CARBON MONOXIDE INDICATOR

Precisely indicates low, dangerous carbon monoxide concentrations in air of tunnels, tanks, and other confined spaces, safeguarding lives and health of workers. Direct reading meter has scale range from 0 to .15% carbon monoxide in air. Bulletin DS-3.

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MONTREAL • VANCOUVER • CALGARY • WINNIPEG • NEW GLASGOW N.S.

(Continued from page 166)

lengths of 14S-T6 Alcoa aluminum extruded channels. These channels measure 9 in. wide by 4½ in. deep, having a gage of ⅜ in. and 3/16 in., respectively. Where these sections join the bridge floor, increased strength and joining surface are made available by welding to the 9-in. vertical surface of the channel an angle of the same aluminum alloy measuring 4½x4½ in. The resulting curb sections are thus a combination angle-channel, 15 ft. long, with a base of 9 in., height of 9 in., and a flange of 4½ in.

### Weight Saving Results

W. L. Lefebvre, Arizona state highway engineer, and R. A. Hoffman, engineer of bridges and dams, estimate that the use of aluminum in the structure resulted in a weight saving of 130,000 lb., or approximately 200 lb. per ft. of bridge available for live load. In addition to reducing the over-all dead weight, the aluminum floor on the present steel stringers has made Cameron Bridge capable of carrying all legal load limits.

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For any make of machine  
Motor Graders, Motor  
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Bulldozers, Backfillers,  
Wagon Scrapers, Trail  
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milled through our own  
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edges to give that extra  
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thicknesses. **STOCKED**  
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name of machines you  
operate—get set for Blades  
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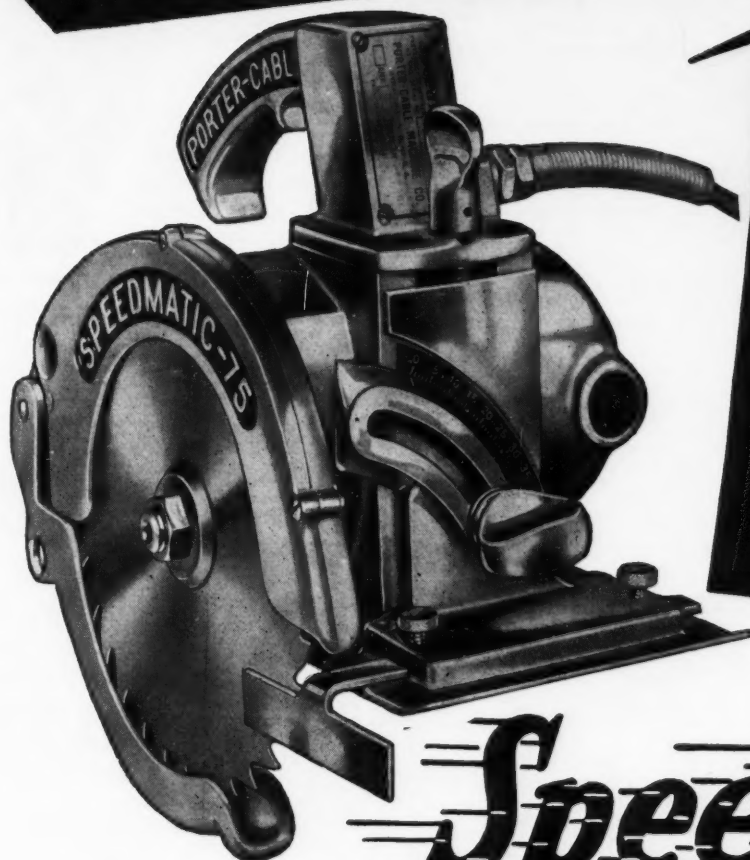
# Shunk

## MANUFACTURING COMPANY

Established 1854  
BUCYRUS, OHIO

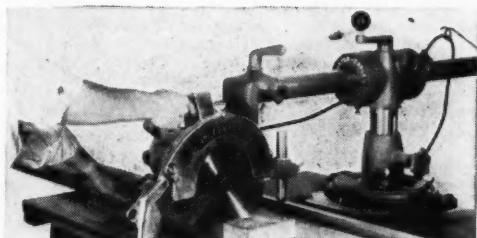
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A.M.D.

With THIS Power Saw . . .



*A Carpenter does*  
**10 TIMES**  
**MORE**  
**SAWING**

# *Speedmatic*



**Has Retractable Radial Arm for Extra Utility!** Unlike some power saws, the Radial Swing Arm of the Porter-Cable SPEEDmatic does not obstruct the operator's view. When he pushes saw out of the way, the arm moves too, leaving the cut and work in perfect view.

With Radial Arm, SPEEDmatic can be set for high production of identically-cut pieces.



**Electric  
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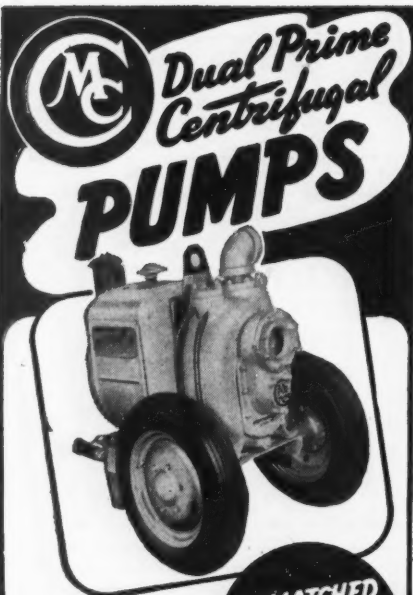
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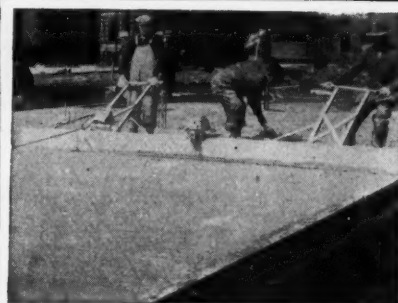
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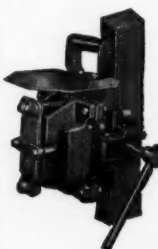
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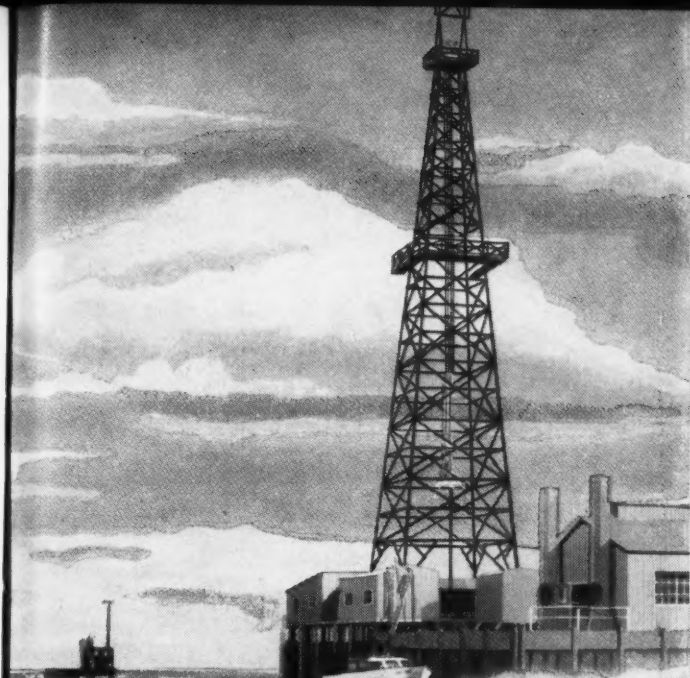
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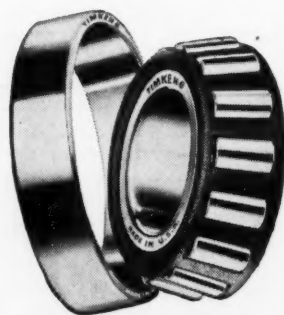
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